

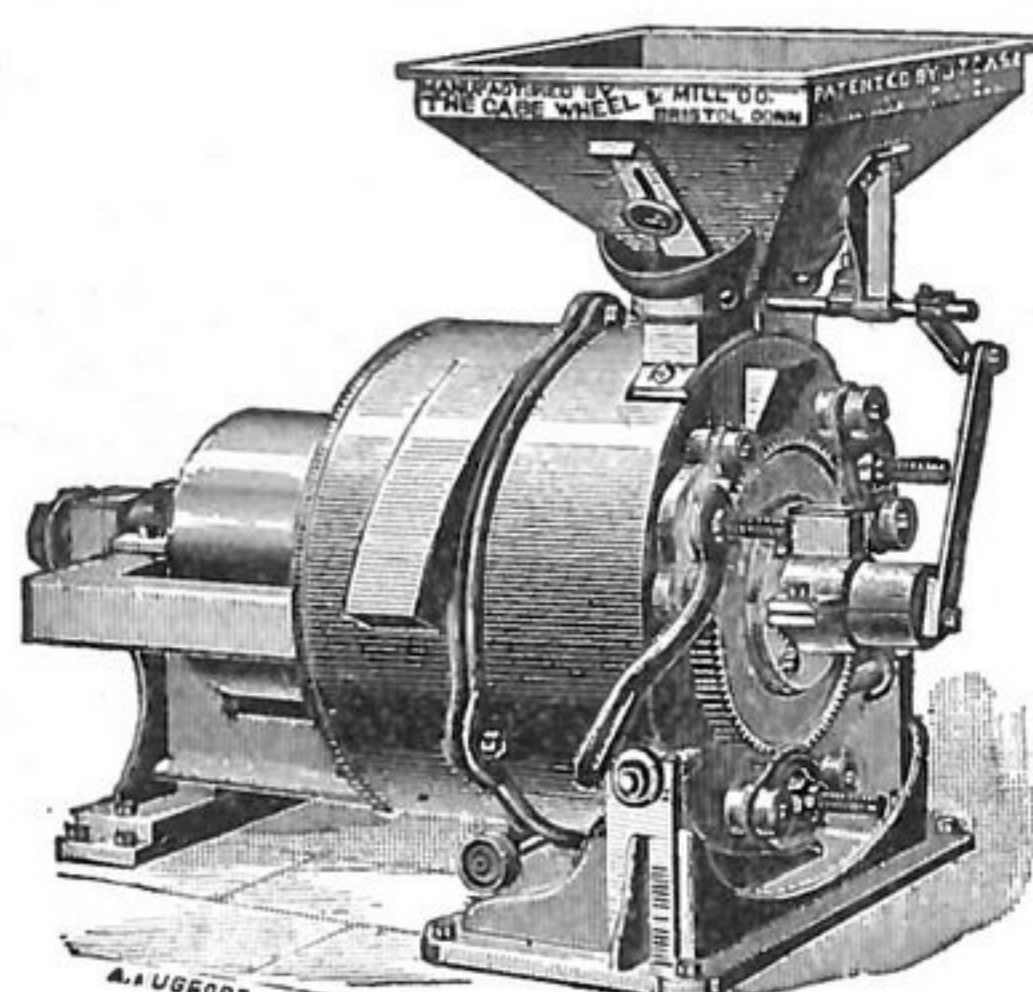
CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XX. No. 20.

BUFFALO, N. Y., JULY 15, 1889.

\$1.50 PER YEAR.



## VICTORY OVER ALL OTHERS. SINGLE & DOUBLE VERTICAL GRINDING MILLS.

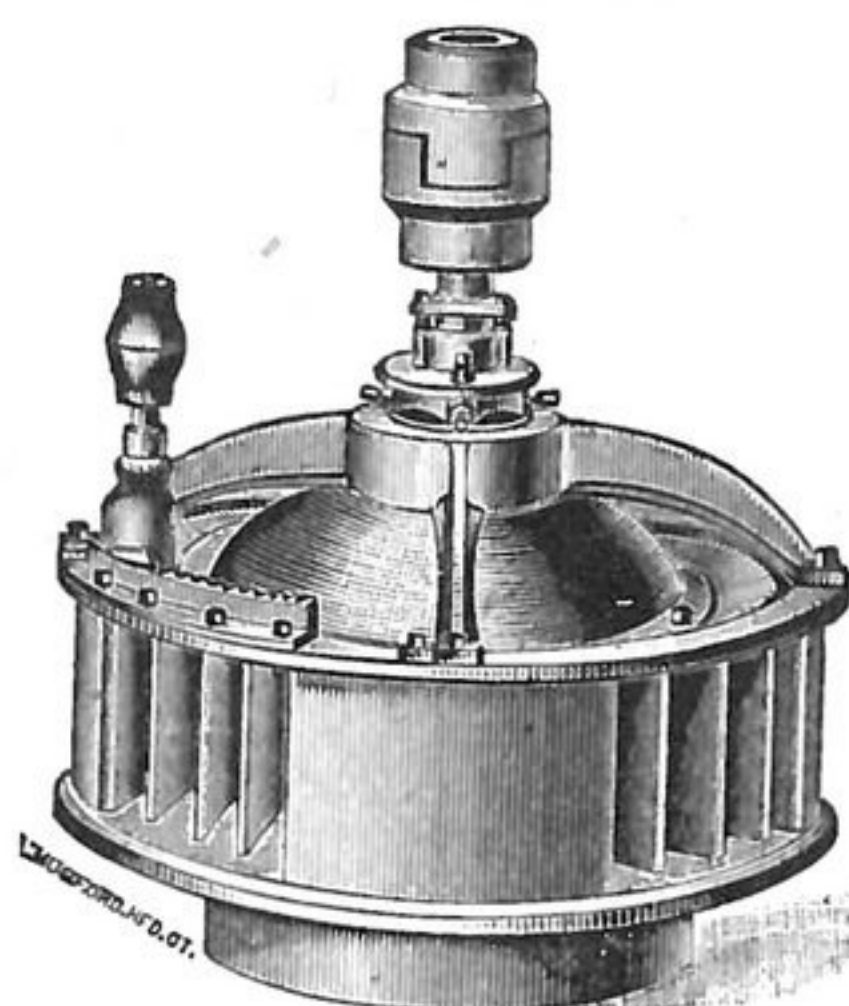
(J. T. CASE'S PATENT.)

FACTS ARE MIGHTIER THAN ASSERTIONS. READ WHAT THEY SAY:

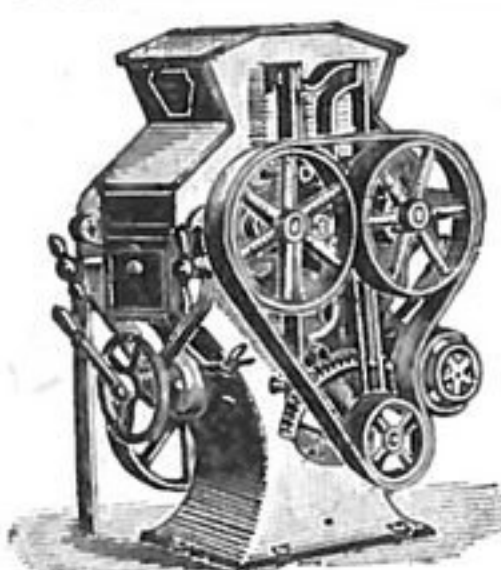
"Our 20-inch mill made by the Case Wheel & Mill Co. is in every respect satisfactory, easy to handle, and best results obtained of any mill in the country, with same quantity coal and power."—A. S. RUSSELL & Co., Meriden, Conn.  
"Superior to any mill in use."—Geo. WESTON, Bristol, Conn.  
"The best satisfaction in quantity and quality."—CHILD'S ELEVATOR, Manchester, Ct.  
"We take pleasure in recommending it."—GARLAND LINCOLN & Co., Worcester, Mass.  
**SEND FOR CATALOGUE—ILLUSTRATED AND DESCRIPTIVE.**

## The Improved National Turbine Water Wheel

The Best for Economy; The Best for Durability; The Best for Power. ONE THOUSAND FIVE HUNDRED NATIONAL WATER WHEELS IN USE Prove that our Assertions are Supported by the Leading Manufacturers in the Country. Send for illustrated catalogue and prices to the manufacturers.



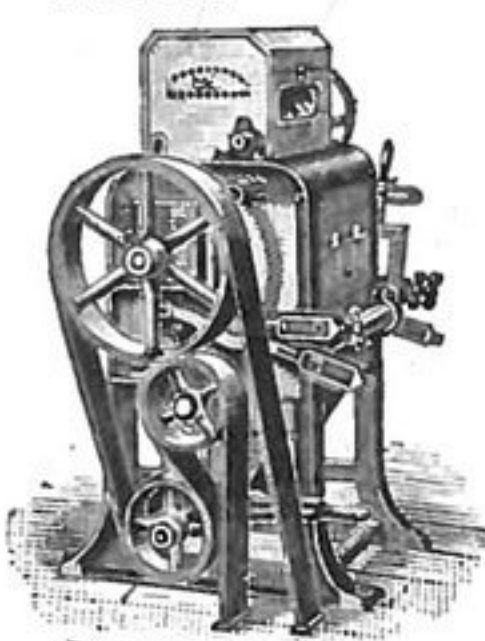
**The Case Wheel & Mill Co., Bristol, Conn.**



Wheat Roller Mill.

**BECAUSE** the adjustable roll is not pushed against its mate but is held rigidly to it, which takes out all vibration.  
**BECAUSE** it does 25 per cent. more work than any other roll.  
**BECAUSE** the heated air is taken out of the machine.  
**BECAUSE** it has the best feeder.  
**BECAUSE** it has no tremor.  
**BECAUSE** it has the effect of a roll without springs.  
**BECAUSE** it can be trammed in a quarter of a minute.  
**BECAUSE** you can tram either end of the four rolls.

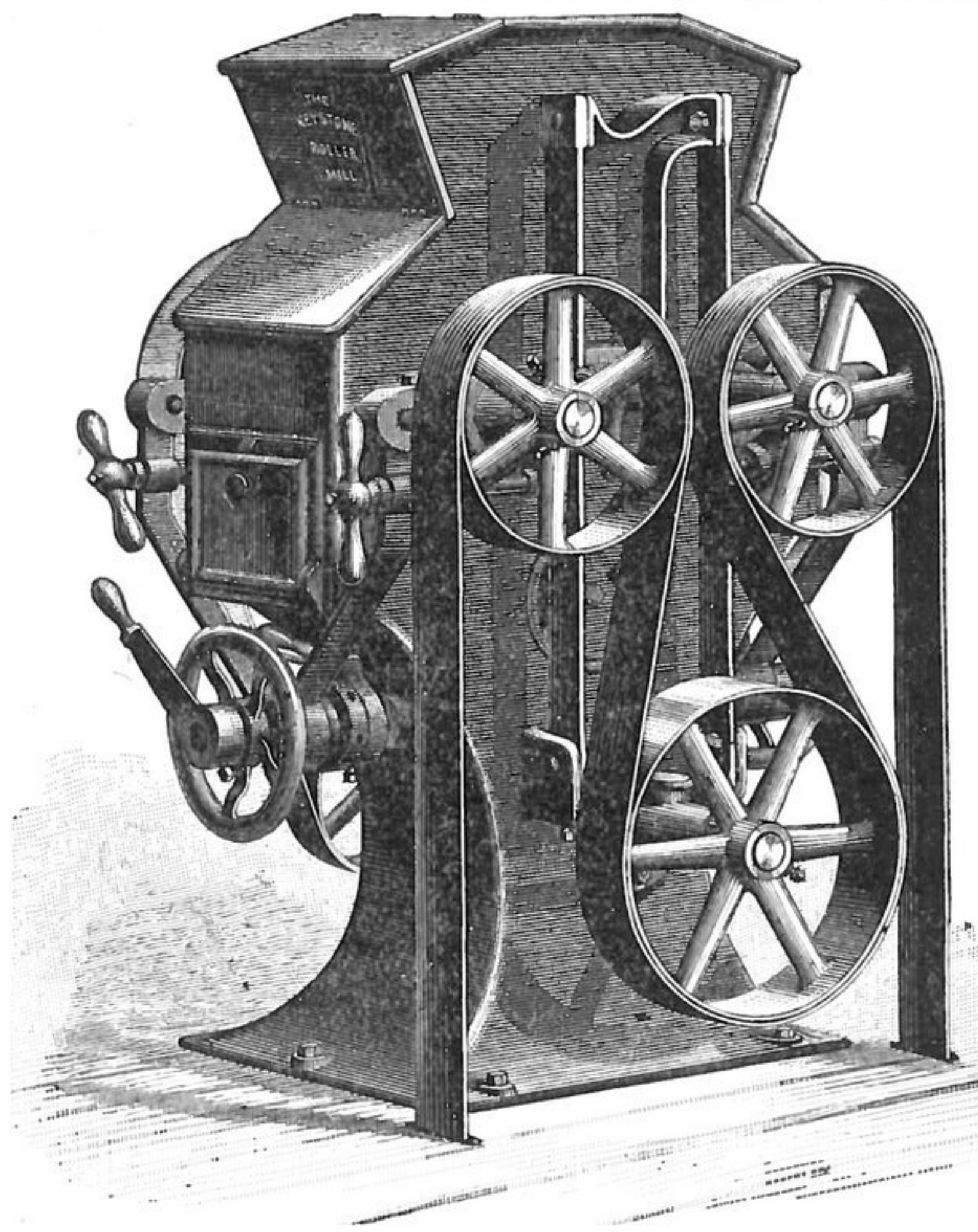
Also ask for prices on the only Noiseless Sieve Scalper, the "Allfree" Improved Purifier, "Climax" Bran Dusters, and "Allfree" Flour Packer.



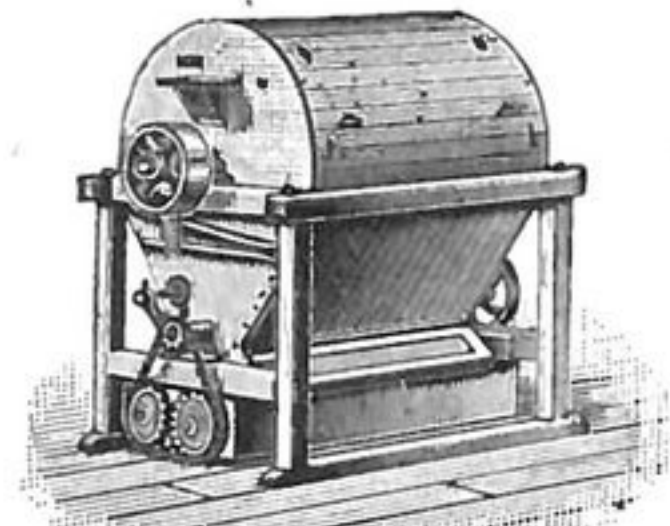
Corn Mill.

# THE "KEYSTONE"

WHY IS IT THE BEST ROLLER MILL IN THE MARKET?



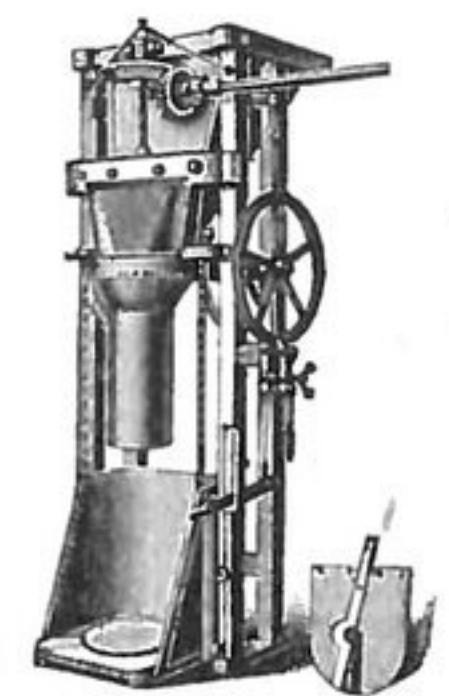
THE KEYSTONE FOUR ROLLER MILL.



Bran Duster.

**BECAUSE** it runs 25 per cent. lighter than any other roll.  
**BECAUSE** all bearings are universal and never get out of line.  
**BECAUSE** you can throw the rolls apart from either side.  
**BECAUSE** you can set both ends of the roll at the same time with one movement.  
**BECAUSE** only one spring is used for both ends of rolls.  
**BECAUSE** there is no slip to the differential.  
**BECAUSE** no dust escapes from machine, all openings being covered.

Also ask for prices on "Allfree" Centrifugal Reels, "Success" Bolter, Three Reduction Corn Mills, Latest Improved Designs.



Flour Packer.

Complete Outfits for Flour or Corn Meal Mills of any Capacity.

**THE J. B. ALLFREE CO., INDIANAPOLIS, IND.**

103 & 105 South Pennsylvania Street.



# FIRE! FIRE!! FIRE!!!

Our entire works were destroyed by fire on the night of May 10th. Scarcely two hours after the workmen had left their day's work a fierce fire started which in less than two hours left our entire plant as complete a wreck as was ever witnessed. But like the

## FABLED PHOENIX OF MYTHOLOGY

*We have risen from our own ashes, and have erected a temporary machine shop above the ruins, and have it already furnished with power and new machinery for Re-Grinding and Re-Corrugating Rolls, together with Lathes and other machinery for doing general machine work. We have leased some Large Railroad Shops and an Extensive Wood-Working Factory so that we are now building Case Roller Mills, Purifiers, Inter-Elevator Flour Dressers and all our other machinery nearly as fast as ever.*

## OUR PATTERNS WERE SAVED

Also all our Plans, Flow Sheets, and the Records of our Business.

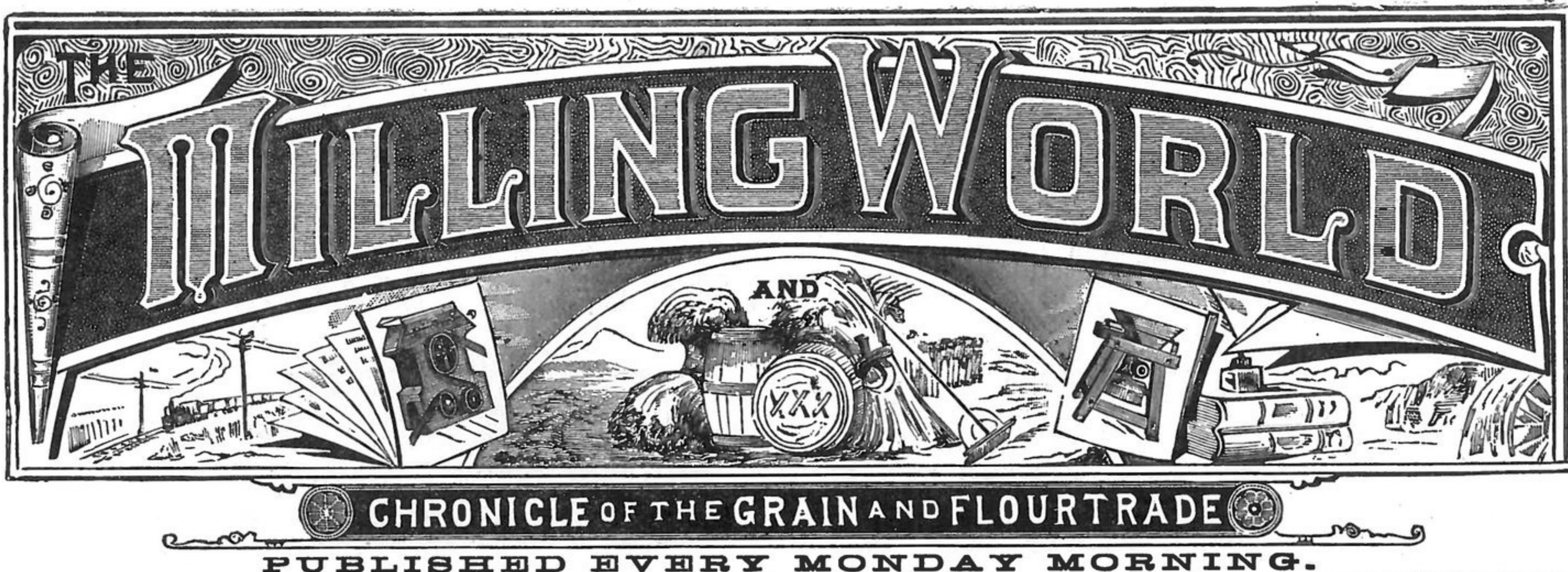
## NEW AND EXTENSIVE WORKS

Will be erected at once on a large building site just purchased, and we intend to make our shops when completed the most convenient and best equipped plant in the country. We expect soon to get caught up with our orders, and will be in shape to contract for new work at an early date. We hereby tender our sincere thanks to our many friends for their letters of sympathy and good will, and also to those who have been patiently waiting for their machines until we could get in shape to make them. We assure all our friends that we shall still be in the field with Case machinery, and will be glad to answer all inquiries the same as ever, for we are still doing business at the old stand.

# THE CASE MFG. CO., COLUMBUS, O.

PLEASE MENTION "THE MILLING WORLD."





VOL. XX. No. 20.

BUFFALO, N. Y., JULY 15, 1889.

\$1.50 PER YEAR.

THE fire-losses for June in the United States and Canada footed \$7,755,000, to which the milling and allied industries contributed \$200,000. The total loss for the first six months of 1889 is \$64,286,000, against \$67,280,850 in 1888 and \$62,921,600 in 1887.

A CORRESPONDENT inquires of THE MILLING WORLD whether there is a probability that another milling journal is to be born, this time, according to a rumor he has heard, in the flourishing village of Silver Creek, N. Y. We know nothing about the probable or possible launching of a new journalistic craft, either in Silver Creek or elsewhere, but if another venture is made in the milling journalistic field, we heartily wish it success according to its merits. There is room for a dozen more good milling journals in this country, despite the dogmatic assertion by one wild western whooper that his single journal ought to satisfy the world. The more, the merrier. Let them come!

THE "soon" persons got in their work this season on the farm of Mrs. Garland, near Wellington, Sumner county, Kansas. On the 22d of June, on that farm, some fine wheat was cut, threshed, cleaned, ground, doughed and baked, between sunup and sundown. We chronicle this whiskered chestnutical performance merely for the sake of adding the usual chestnutical advice that, in addition to producing the earliest loaf of bread from the crop of the year, it would be a pleasing variation of the performance to signalize the opening of the harvest by cutting, threshing and cleaning the grain and distilling and drinking the first glass of intoxicant all in one day. The advice is bearded, but it goes with the performance. Try it.

INSURANCE men have been photographing various establishments for the benefit of inspectors. From the gallery they have formed are selected the following portraits of establishments that utilize grain in one form or another: 1. Grain elevators and storehouses—exposures important; moral hazard high; danger from flying sparks. 2. Breweries—ordinarily moral hazard moderate; look out for explosions of dust, sparks and carelessness in many forms. 3. Bakeries and confectioneries—exposures very important, then defective ovens and flues and ignitions of grease. 4. Flour, grist and oatmeal mills—moral hazard important; then friction in machinery, spontaneous combustion, engines and boilers. Messieurs Millers, Elevator Owners, Bakers and Brewers, do you accept the portraits of the insurance artist as good and satisfactory ones?

MESSRS. John L. Sullivan and Jacob Kilrain, those two super-eminent exponents of American milling, conducted a "mill" at Richburg, Marion county, Mississippi, on the 8th of July, which stands at the head in its line. There were 75 "breaks," making it the most elaborately "long" mill on record, and the "aspiration" of Miller Kilrain ended with the 75th "break," when Miller Sullivan was declared the champion. It was a profitable "mill" for Sullivan, who won in it the championship of the world, a diamond championship

belt which he says he "would not put on a good bull-dog," and a cool \$20,000 in cash, beside the adoration of all the toughs and thugs in the world. It was a famous "mill"!

IN another column appears a communication from Mr. Frank Barry, the new secretary of the Millers' National Association, concerning the movement to secure uniformity in the weight of packages of flour in all the states. We advise every miller to communicate at once with the Representative of his district in Congress and urge the passage of such a law as is outlined in Mr. Barry's communication. The matter is one that directly concerns all flour-makers, and it should and can be promptly settled in a satisfactory manner.

ONE of the organs of the grain-gamblers has made the startling discovery that "the miller is by nature a bear." The ignoramus on economic subjects who bleats out that assertion should try to square up his ideas with common-sense. The price of the miller's finished product is fixed principally by the known cost of his raw material. An abundant crop of wheat means cheap wheat, quite as cheap as the miller cares to see it, and it also means cheap flour, fully as cheap as the flour-maker cares to see it. The grain-gambling economic ignoramus should explain whether the miller is a "bear" on grain or on flour. Supply and demand and a full general knowledge of the grain crops make prices, as some of the grain-gambling millers and exporters have found to their cost within the past year. The average miller, like any other manufacturer, desires to buy his raw material as cheaply as possible and to sell his product for the highest possible price, but to charge him with being a wrecker of values is to libel him, and to accuse him of bearing when bearing implies less profits is to call him a fool in a roundabout way. The gamblers' organ does not circulate among flour-makers, and consequently its bumptious assertion will not be represented by the men whom it libels.

WITHOUT any preliminary trumpet flourishes, Secretary Seamans, of the Millers' National Association, has resigned his secretaryship. The reason assigned for his resignation is that his business demands his time and attention to such a degree that he has not been able to give to the secretaryship the care it needs. His successor is Mr. Frank Barry, who recently left a position with E. P. Allis and Company, of Milwaukee, and who will devote all his time to the work of the association. The change probably means nothing, so far as the conduct of the association is concerned, because that organization is in a rut and on the wrong track, and even so bright, intelligent and active a man as Mr. Barry will not be able to lift it bodily out of the rut and set it on the right track. As secretary, he will merely record actions. He can not control actions. The higher authorities in the association must institute all changes, and, as they seem unable or unwilling to make changes, the retirement of Mr. Seamans and the entrance of Mr. Barry may be taken to mean a continuance of the old condition of affairs. We welcome Mr. Barry, and we will gladly give him all the co-operation possible in reforming the association. Shake, Secretary Barry!

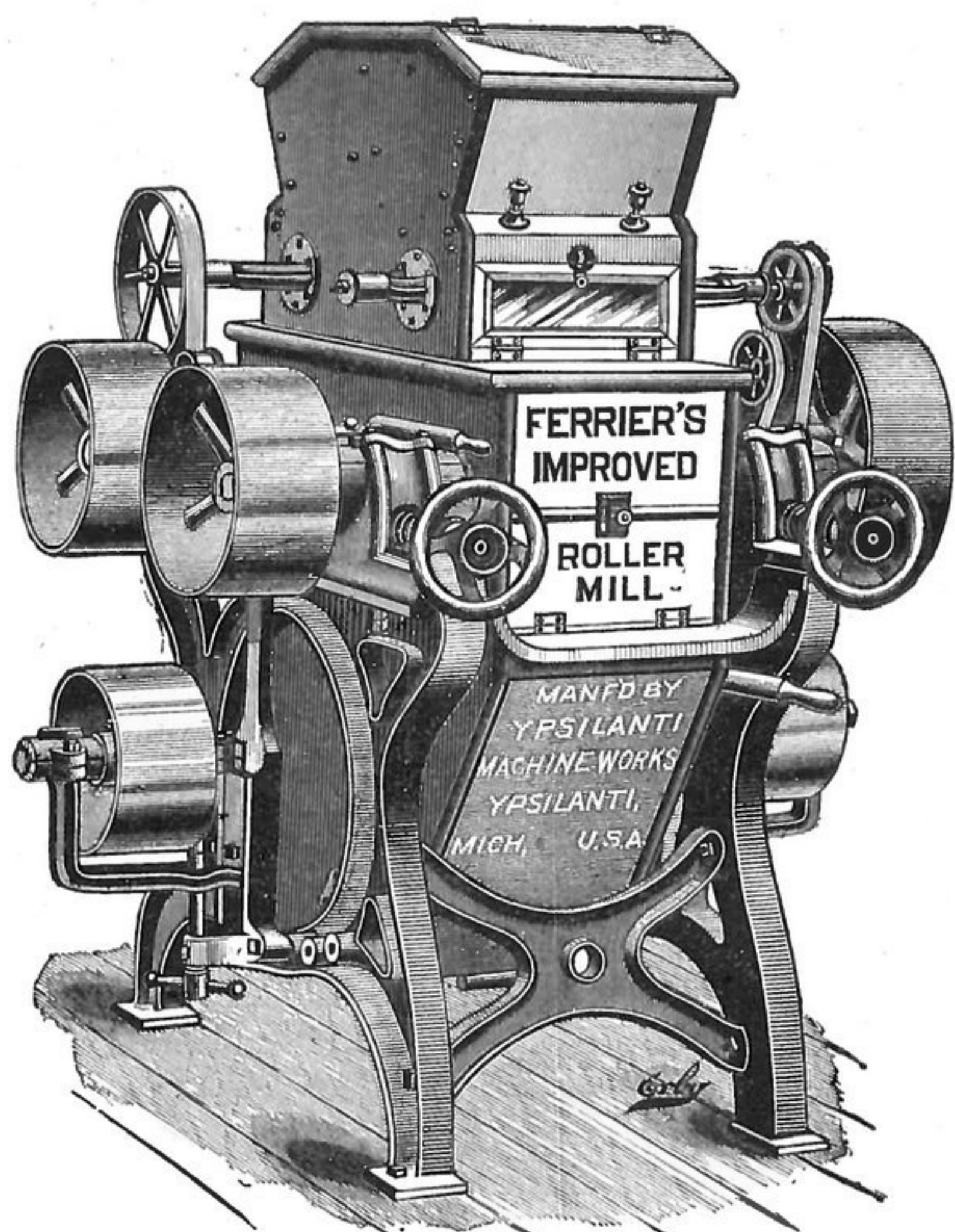


# YPSILANTI MACHINE WORKS, YPSILANTI, MICH.

## MILL BUILDERS

And Manufacturers of

## FLOUR MILL MACHINERY



Sizes of Ferrier's Improved Four-Roller Mills.

6x12	6x15	6x20
9x15	9x18	9x24

YPSILANTI MACHINE WORKS, YPSILANTI, MICH.

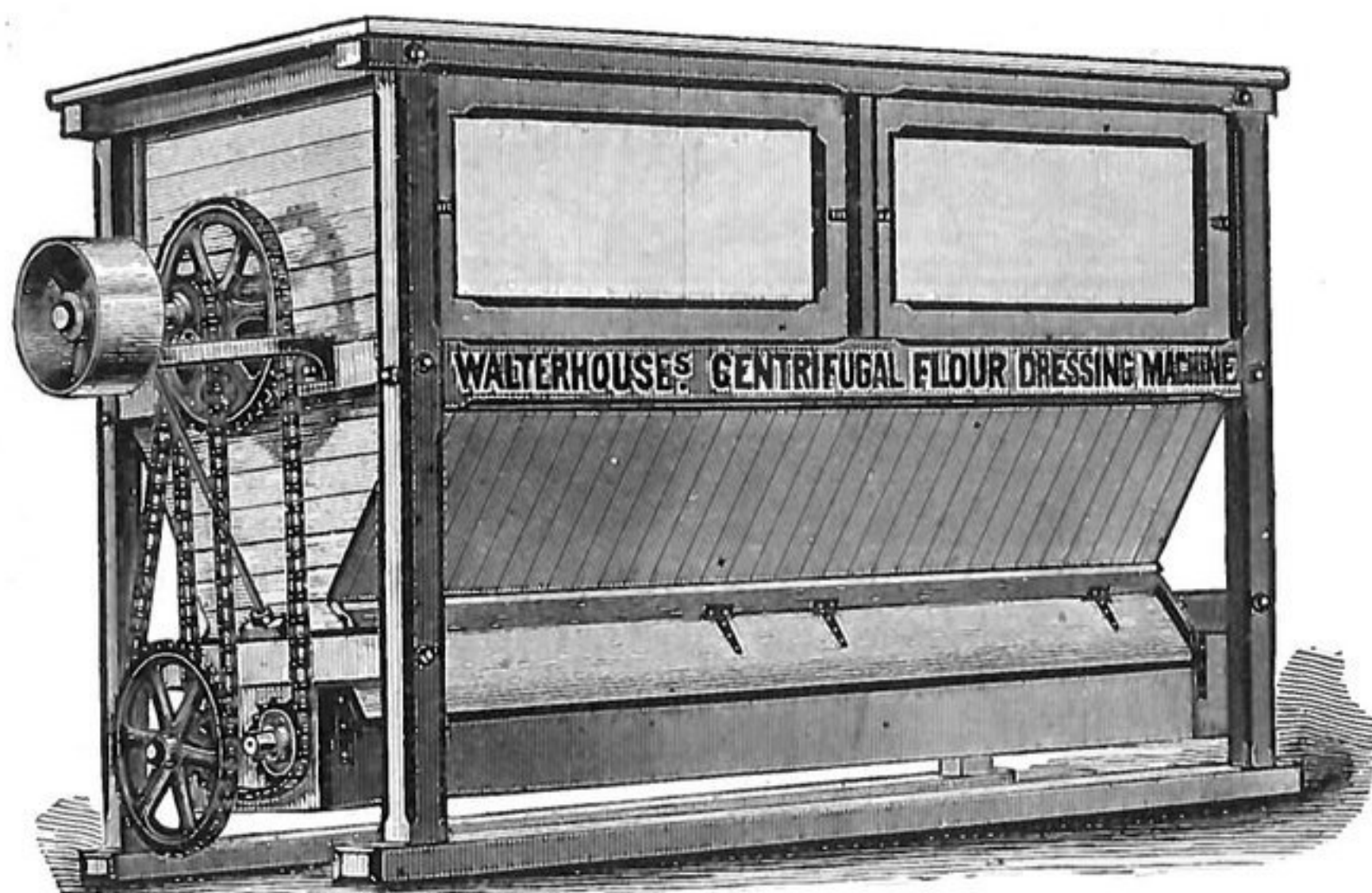
*Gentlemen:* We have had a line of your "Roller Mills" in use for over two years, and they have given entire satisfaction in every respect. They work like a charm, and their ease of adjustment and solid structure, together with the excellent finish you give them, can but recommend your machines to the milling public.

Yours respectfully,

A. R. DICKINSON & CO.

NASHVILLE, TENN., MAY 3, 1889.

Dealers in Bolting Cloth. Walterhouse's Centrifugal; Walterhouse's Slow-Running Flour Dresser with Inside Cylinder; Plain Round Reels; Scalpers, Bolting Screens, Etc., Etc., Etc.



JOHN ORFF, PROPRIETOR OF  
EMPIRE FLOURING MILLS,  
FORT WAYNE, IND., APRIL 10, 1889.

YPSILANTI MACHINE WORKS, YPSILANTI, MICH.

*Gentlemen:* The Centrifugal Reel bought from you some time ago is doing its work complete in every respect. It does a large amount of work, and does it well. Should we make further changes in bolting, shall use more of them. Wishing you success, we remain,

Respectfully, JOHN ORFF.

To YPSILANTI MACHINE WORKS.

OFFICE OF LEXINGTON MILL CO.,  
LEXINGTON, MICH., JAN. 22, 1889.

*Gents:* In reply to yours of June 5th, would say that we are well pleased with our mill. It has more than met our expectations. Although it was feared that the six-inch rolls would not prove a success, we find them to be complete in every respect. We are making as fine a flour as there is made in the state, and we guarantee our patent to be equal to Minnesota Patent. The mill has given us no trouble whatever since we started it, and for plan and workmanship, your Mr. G. Walterhouse deserves great credit. If your friends doubt it would be pleased to have them come and see for themselves.

Yours respectfully,

LEXINGTON MILL CO.

# Dawson's Roller Mill

Is acknowledged to be the very best in the market. It has our Patent Automatic Centrifugal feeder, never failing to feed the stock the full length of rolls in an even sheet. It is the Latest and Best feed out, uses less power and is simple in construction. It can be placed on any style of machine with little expense. We use for roll bearings phosphor-bronze metal which will admit rolls being run at any speed without heating and with little friction, and uses little oil. We use the Dawson Corrugation, which is admitted the best in long or short system mills as the action is granulating rather than CUTTING.

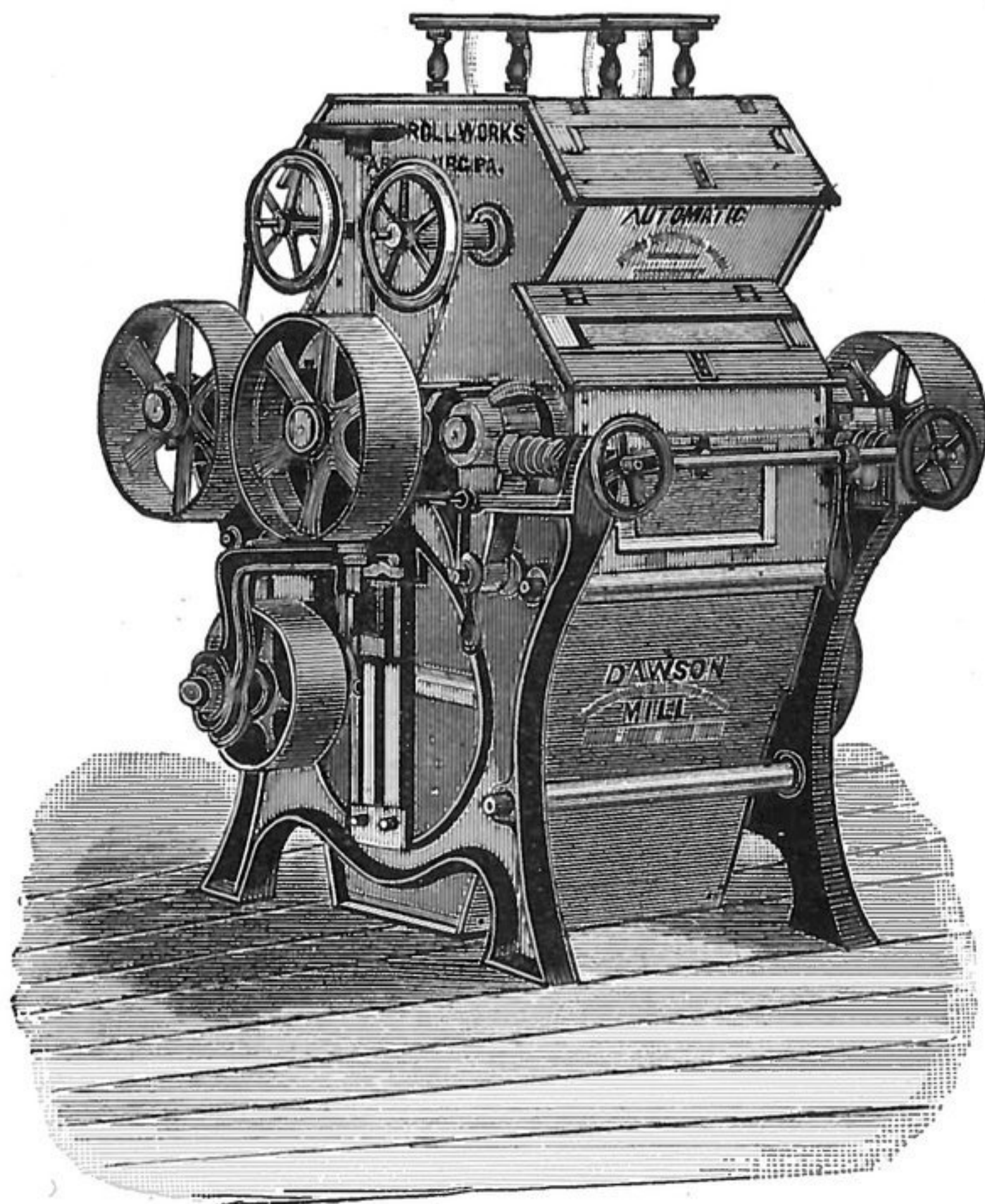
*We have a large plant to Re-grind and Re-Corrugate Rolls.*

Owing to our late increased facilities and central location we are enabled to ship goods promptly on the shortest notice.

PARTIES CONTEMPLATING REMODELING THEIR MILLS OR BUYING ANY ROLLER MACHINES ARE REQUESTED TO PUT THEMSELVES IN CORRESPONDENCE WITH US.

FOR PRICE LISTS AND CIRCULARS, ADDRESS,

# Dawson Roll Works, Harrisburg, Pa.







PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,  
Over Bank of Attica.  
McFAUL & NOLAN, - - - PROPRIETORS.  
THOMAS MCFAUL. JAMES NOLAN.

#### SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in unregistered letter at sender's risk.  
To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

#### ADVERTISING.

Rates for ordinary advertising made known on application.  
Advertisements of Mills for Sale or to Rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisements taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

#### EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

**THE MILLING WORLD,**  
BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

#### SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

#### WANTED.

A situation as first or second miller. Married. Rolls or stone. Well up in rolls. Good stone dresser. "MILLER," 1845 Niagara street, Buffalo, N. Y. 19

#### WANTED.

A situation with parties who appreciate good work, with rolls or buhrs, on patents. Have the following recommendation from Miller Bros., Forest Grove, Ore., dated Nov. 10, 1887: "To whom it may concern: This is to certify that Peter Provost has been in our employ as head miller, and has given entire satisfaction. We believe him to be a very competent man, and cheerfully recommend him to the milling public." State wages you wish to pay. Address, PETER PROVOST, Menominee, Mich. 21

#### SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 3 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

#### WANTED.

A miller with some capital to help stock with, to take charge and run my mill. Address LOCK BOX 265, Clearfield, Clearfield county, Pa 1720

#### FOR SALE.

Several good second-hand and new turbines of various styles. Second-hand price list and descriptive matter and prices of our new machines sent free. Every one interested in the shortest route to successful milling on rolls or in grinding corn and feed with the least expense of power, should address us before buying.

FLENNIKEN TURBINE CO.,  
Dubuque, Iowa.

8tf

#### MILL MACHINERY FOR SALE.

One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.  
One 20-Inch Under-Runner Portable Mill, French Buhr Stone, capacity 10 to 12 bushels per hour; new, best make.  
One 14-Inch Vertical Feed Mill; best make, new, a bargain.  
One No. 6 Dustless Separator; new, a bargain.  
One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.  
Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.  
Two No. 1 Corn Shellers. New.  
One No. 2 Purifier. New. Best make. A bargain.  
For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

#### MILL WANTED.

I want to rent a good water power custom mill for a long term of years. For particulars address "W," care of THE MILLING WORLD, Buffalo, N. Y. 1619

#### FOR SALE.

Flour-mill, corn-mill and cotton-gin, in a new growing country, splendid for wheat. Good opening for a mill-man who understands the business. For particulars apply to W. J. MILLER & CO., Ballinger, Texas. 2023

#### PETER PROVOST'S VALUABLE PATENT FOR SALE.

SOMETHING ENTIRELY NEW. A RARE CHANCE FOR SPECULATION.

No wide-awake manufacturer will deny that this is an age of progression, and that there is some thing new and more useful taking the place of the old, and still there are a few old fogies, who shut their eyes to the progress of art and science and say that patents are all humbugs and imagine every thing is perfect, just as our great-grandfathers thought when they called Fulton "crazy" when he discovered the use of steam. It is so with heating wheat and steaming wheat for cleaning. They say: "Some wheat does not need steaming, Peter Provost." They do not take into consideration the fact that nearly every thing of any value has one day been patented. Had it not been for inventors, we would be in the same state of affairs as when Adam and Eve were without even a suit of clothes. Then, certainly, no sane man can deny that inventors are the founders of improvement, and that it is right they should be protected by patents, securing to them a remunerative reward for their labors. When someone invents new and more useful machines, like Peter Provost's grain-scourer, patented Feb. 26, 1889, and No. 398,538, or tools and implements better than those in use, the wise manufacturer, who possesses that quick perception and sound judgment that eminently qualify him to discriminate between the truly useful implement and that which appears to be such, at once proceeds to investigate the merit and utility of the invention to see whether or not it will pay to invest in its manufacture. I will sell state rights. Address, PETER PROVOST, Menominee, Mich. 1821

FAREWELL, Secretary Seamen! You did some things well, as secretary of the Millers' National Association. Other things you did less well. May you never regret your resignation.

In another column appears an account of the convention of Canadian millers in Toronto. It will be interesting reading for the millers of the United States, who are at present favored by the Canadian import duties on grain and flour, to the loss of the Canadian millers. The flour-makers of Canada appear to have a particularly hard row to hoe.

EVIDENTLY the British flour-dealers and flour-makers are learning that one swallow does not make a spring, and that even two swallows may not make a spring. One abundant and excellent crop of wheat in Russia in the year 1887 made them believe that at last they were about to become independent of the United States for their supply of wheat grain. A second abundant Russian crop in 1888 quite confirmed their belief, and now for two years we have been hearing that the British market, having secured abundant supplies elsewhere, will call for largely reduced supplies of wheat grain and flour from the United States. Some of the most earnest and unreasoning among the British have even gone so far as to predict the utter wiping out of the American breadstuff trade with Great Britain. THE MILLING WORLD has steadily maintained that all this jubilation was ill-founded. We have pointed out the accidental character of the changes in the situation, and we have insisted that those changes are only temporary and that every indication points to the continuation of the breadstuff trade of the United States with Great Britain. Our position has been assailed, but it is fast being proved impregnable. India has short crops this season, with very miserable quality. The Southern Hemisphere, instead of exporting, is importing from the Northern Hemisphere. Austro-Hungary has a wheat-crop below the average. Germany shows only an average. Canada reports the probability of a crop only one-third of an average. Russia, the one country on which British hopes have ever been built highest, reports an almost disastrous failure this season, both in spring and winter wheat. On all sides there are indications of a wheat-crop below the average of the world. In the United States alone is there a great surplus over the needs of domestic consumption, and it now looks as though that surplus will be exhausted to supply the importing countries in Europe. So decidedly has the prospect for abundance in Europe become clouded that, according to a cablegram from Leeds, England, dated July 9, the Corn Millers' Association, in session there, decided to advance the price of flour 25 cents a sack. The increase is due to decreased receipts of foreign grain and to the bad reports of crop conditions in Russia. Our British friends will be pleased, under the present circumstances, to learn that their generous friends, the American farmers and millers, are able and willing to keep them from starvation and to do it at a fair figure.

**M-I-L-L-E-R-S**

Wanting Bolting Cloths should write for discounts on same before purchasing elsewhere to

**SAMUEL CAREY,**  
17 Broadway, New York.



## THE MECHANICAL EQUIVALENT OF HEAT.

The history of the establishment of the science of thermodynamics is very interesting, especially of that fundamental principle which is known as the "first law." This principle, stated in simple language, is that a pound of water in cooling one degree Fah. gives off an amount of heat which is capable of raising 778 pounds through a height of one foot. Credit for the determination of this important constant is usually accorded without question to James Prescott Joule, of Manchester, England. As early as 1843 that gentleman had made a number of experiments for determining the constant in question, obtaining results varying from 587 to 1,026. He made experiments, also, on the heat evolved by the friction of water in small pipes, from which he deduced an equivalent of 770 foot-pounds. In the following year Mr. Joule entirely changed the plan of his work, employing new and better methods and obtaining numerous results. From five different experiments he obtained as many results; but they agreed very well and gave a mean value of 802 foot-pounds. In 1845 he experimented on water agitated by a paddle-wheel, and by comparing the work expended in turning the paddle with the rise in temperature of the water he found 890 as the value of the equivalent. Two years later he made similar experiments with both water and oil, with additional refinements that his experience had suggested, and from these he obtained 781.5 and 782.1 respectively, the mean of which is 781.8. He had been at work on the problem for a number of years, when in 1849 he undertook a final determination of the equivalent, and, with all the care and watchfulness that his experience and keen insight had shown to be necessary, he carried out a series of 40 experiments on the friction of water, 50 on the friction of mercury and 20 on the friction of cast-iron plates, from which he deduced the value, 772 foot-pounds, that has been accepted without question for nearly 35 years.

Great as is the credit that Joule fairly won, we must not overlook the fact that equal credit belongs to Dr. Julius Robert Mayer, who was engaged at the same time upon investigations which were of equal importance, though carried on in an entirely different manner. In 1840 he was a physician on the island of Java, and while there he noticed that the venous blood of his patients was unusually red. He pondered over this for some time and concluded that it was owing to the fact that a less amount of oxidation of the tissues of the body would keep up the bodily heat in a hot country, like Java, than would be required in a colder one. Following up this thought he at length came to the conclusion that a fixed relation must exist between heat and work. In 1842 he published a paper containing his views, and in this he made the attempt to determine this relation numerically. Professor Tyndall thus describes his reasoning: "It was known that a definite amount of air, in rising one degree in temperature, can take up two different amounts of heat. If its volume be kept constant, it takes up one amount; if its pressure be kept constant, it takes up a different amount. These two amounts are called the specific heat under constant volume and under constant pressure. The ratio of the first to the second is as 1:1.421. No man, to my knowledge, prior to Dr. Mayer, penetrated the significance of these two numbers. He first saw that the excess .421 was not, as then universally supposed, heat actually lodged in the gas, but heat which had been actually consumed by the gas in expanding against pressure. The amount of work here performed was accurately known, the amount of heat consumed was also accurately known, and from these data Mayer determined the mechanical equivalent of heat. Even in this first paper he is able to direct attention to the enormous discrepancy between the theoretic power of the fuel consumed in steam-engines and their useful effect. Though this paper contains but the germ of his further labors, I think it may be safely assumed that, as regards the mechanical theory of heat, this obscure Heilbron physician, in the year 1842, was in advance of all the scientific men of the time."

Comparing Joule and Mayer, Professor Tyndall continues: "Withdrawn from mechanical appliances, Mayer fell back upon reflection, selecting with marvelous sagacity, from

existing physical data, the single result on which could be founded a calculation of the mechanical equivalent of heat. In the midst of mechanical appliances Joule resorted to experiment and laid the broad and firm foundation which has secured for the mechanical theory the acceptance it now enjoys. A great portion of Joule's time was occupied in actual manipulation; freed from this, Mayer had time to follow the theory into its most abstruse and impressive applications. With their places reversed, however, Joule might have become Mayer, and Mayer might have become Joule." Other distinguished experimenters have undertaken the determination of the mechanical equivalent of heat. Joule himself as late as 1878 published results obtained by himself shortly before from the thermal effects of the friction of water. In a paper read before the Royal Society in that year he stated that, taking the unit of heat as that which can raise a pound of water (weighed in a vacuum) from 60° to 61° of the mercurial thermometer, its mechanical equivalent, reduced to the sea level and to the latitude of Greenwich, is 772.55 foot-pounds. Of the other prominent physicists who have studied this constant, Favre deduced 753 from the friction of steel on steel, and 807 from the heat absorbed by an electromagnetic engine for the production of work; Hirn deduced 787 from the friction of liquids, and 775 from the compression of lead; Quintus Icilius deduced 714½ directly from the heat developed in an electric circuit. By comparing the work expended in revolving the plate of a Holtz electrical machine with the heat produced by the resulting current, Rosetti deduced 776.1 foot-pounds. Le Roux, from the heat produced by rotating a tube full of water in a magnetic field, found 835; Violle, by similar experiments on discs of metal in the place of water, found 793.2 with copper, 794.3 with tin, 797.3 with lead, and 792.7 with aluminum. The mean of these is 794.4; but M. Violle, feeling more confidence in some of his results than in others, gives his preference to the number 793. Bartoli deduced 771.12 from the friction of mercury in small tubes.

No doubt many others have made good determinations of the mechanical equivalent of heat, whose results we do not have at hand. At least two experimenters that we have not yet mentioned have made highly important contributions to our knowledge of the subject. They are Regnault and Rowland. By a careful study of the velocity of sound in gases Regnault determined the ratio of the two specific heats of gases, which ratio was used by Mayer in his first calculation. Regnault's result was 1.3945 instead of 1.421; and from this and certain other data Mayer's calculation was repeated, and the result was 794.8. The difficulty of a determination of this kind is very great; and the differences among the results that we have called attention to are perhaps no greater than might be expected. Prof. Henry A. Rowland has made a classical determination of the equivalent, and his result is without doubt entitled to full confidence. His investigations were very extensive and involved many difficult problems in thermometry. He found among other things, and contrary to the accepted belief, that the specific heat of water is greater near the freezing point than it is at and near 80°. Rowland's result is that the mechanical equivalent of heat is 778 foot-pounds at 38.2° F., if the temperature is measured by a mercurial thermometer, and 783 foot-pounds if by an air thermometer. The older number, 772, is so widely known that it will very likely be used among engineers for a long time yet, especially as it is sufficiently near the truth for most purposes; but sooner or later Rowland's value, 768, will probably supersede it.

## THE COMPRESSION OF BRAN.

Following is the paper on compressed bran read at the Milwaukee convention of the Millers' National Association by Mr. Wm. De La Barre, of Minneapolis: Of the various assortments of offals produced during the process of milling wheat, the most important is undoubtedly the bran, since it forms upon the average at least 15 per cent. of the total weight of the grain. In addition to this the fact of the bran possessing a high market value enables it to exercise very great influence upon the success or otherwise of every mill-



ing establishment. While both grain and flour constitute large and increasing articles of commerce, bran, from an international point of view, is practically excluded, owing to the difficulty and heavy cost of transporting it to any great distance, consequent upon its large bulk compared with its weight when packed in the ordinary manner. In many foreign countries the profitable disposal of bran is impossible, and a natural result of this is that the producers are heavily handicapped in their business. This state of things would be entirely reversed were the bran, in place of being as heretofore loosely packed in sacks, capable of being exported in the form of hard and dry cakes, thereby bringing its weight and bulk into so close a ratio that the carriage of the material to long distances could be effected at a reasonable cost.

For years past endeavors have been made to form and press bran into cakes; but these have proved all more or less unsuccessful, and it has been reserved for the Finke-Lesshafft process to demonstrate the fact of the possibility of pressing bran and similar products into cakes of a hard and durable nature by the judicious application of heat and superheated steam to the material before commencing the process of pressing. The object is to produce a firm and properly coherent cake, which shall keep well under various circumstances, which, even though chipped at the corners and edges, shall not readily fall to pieces, and which shall at the same time present the advantage of being small in volume, so that it may conveniently be packed and readily transported. Attempts have been made frequently to work the exterior portions, husks, shells or cortex of grain and the cereals, especially bran into a firm or solid mass, by simple pressure, but these attempts have not been productive of good results. As a general thing, the cakes which it was desired to make fell to pieces as soon as pressure was removed, since the particles out of which it was desired to make the same, especially when these are of bran, will not adhere or cohere of themselves. In order to get greater firmness of the cake it has been proposed to moisten the substance from which it is to be made with water, which would put the glutinous matter into solution, and then to form the cake by pressing the mass in a hot press; but under this procedure only a coherent crust was formed upon the surface of the cake, so that upon any injury to this crust the cake fell apart. Furthermore, cakes of this kind retain so much water in their interior that decay readily sets in. By the present procedure all these defects are remedied.

The present invention consists in a mode of forming dry cake from the husks, shells or cortex of the cereals, or from bruised or broken grain itself, especially from bran, which consists in dissolving the glutinous substances in the material named, especially the gum, only on the surface of separate particles thereof, and this by means of hot steam, so that the body of the particles of the bran or other material shall remain dry, and then pressing the mass hot, whereby a coherent and dry cake will be formed. It is obvious that this invention can be carried into effect in various ways, and that any suitable press will serve the purpose. The salient feature of the invention is the presentation of the proper conditions, to secure by the use of steam at such high temperature that, without wetting their interior, the agglutination of the particles of the mass may be secured to cause them to cohere into a firm and dry cake upon pressure. The steam dissolves the glutinous matters on the surface of the separate particles at once and in sufficient quantity, so that upon the application of pressure a firm cohesion of all the parts is effected, and the production of a solid dry cake achieved. The quantity of steam to be introduced into the apparatus is governed by the kind and quantity of material to be treated. As the bran passes to the press in a heated condition, the contained or inherent heat causes the cake to come from the press in an absolutely dry state, so that the same, even when stored in a place not perfectly dry, will not spoil.

There is no subsequent falling apart or crumbling of the cakes, since the material becomes unitary, in all parts a firmly cohering mass; hence any breaking off or injury to

the corners of a cake has no deleterious effect upon the holding together, firmness or cohesion of the same. It is clear that to attain this result it is essential that the bran should be pressed while dry and hot, and that therefore the admission of steam must be so regulated that nothing like a pulpy mass will be formed. In such case, upon pressing, the crust which would be formed upon the surface of the cake would prevent a thorough drying, so that moisture would remain in the interior, which would be productive of speedy spoiling. Although reference has been made chiefly to the pressing of bran into solid bodies, it will be apparent that by the same procedure coarse unbolted flour, or meal, or broken grain may likewise be converted into firm and solid cakes. Bran and similar materials possess within themselves the necessary properties for securing the required adhesion of the various particles when acted upon by warmth and moisture in a suitable manner, and it is upon this fact that the Finke-Lesshafft process has its foundation. The formation of cakes by pressing bran is not new. This has been done with a warming and steaming of the bran; but it is new in the procedure that, directly before pressing, the bran or the like is steamed, and to that point that the glutinous matter therein contained, especially the gum, is so far dissolved that the separate particles of the bran upon pressing into cake will firmly stick together without leaving the cake moist.

Messrs. Nagel and Kämp, of Hamburg, Germany, have devised a machine of ingenious construction, which embodies the Finke-Lesshafft process and which produces a constant stream of compact and durable bran cakes in a simple and expeditious manner. The compressing apparatus as devised and patented by Messrs. Nagel and Kämp resembles somewhat an iron-planing machine in its outward appearance. There is a solid iron frame with a crank-shaft which sets in motion two or more plungers, which work into pressing cylinders arranged horizontally on this frame, and each time the plungers are drawn towards the crank a measured quantity of bran falls into these pressing cylinders. Upon the advance of the stamp this material is forced into a long and suitably formed mould, and from this the finished cakes are discharged somewhat after the manner of moist bricks in a brick press. The crank works within a link to which the stamps or plungers are attached, and the whole is driven by a belt pulley and geared wheels. The material to be pressed enters first into a separating chamber and is thence discharged into the heating and steaming apparatus below. This apparatus is furnished with a steam-jacket and contains a series of plates placed one over the other in such a manner that the material falling upon them is minutely subdivided and in this condition is subjected to the heating and steaming process before passing into the pressing cylinder. The stamp or plunger carries the material through the pressing cylinder into a mould from which the finished cakes are discharged in a fit condition for storage, either in single cakes or in layers.

The pressing cylinder is constructed with a view to the removal, during the pressing process, of any superfluous air or moisture which may be in the material, and the mold can be adjusted to give any required degree of compactness to the cakes. The cakes formed by Messrs. Nagel and Kämp's Bran Press average in bulk only 1-5 or 1-6 that of a similar weight of wheat bran when packed in the ordinary manner, and in the case of bran from rye the bulk is reduced one-half. The capacity of this bran-press is equal to about 1,500 to 2,000 pounds of bran per hour. The machine requires for its operation from 5 to 7 horse-power and one man as attendant. Cakes formed by this process weigh upon the average one ton per cubic meter (35 cubic feet) and form a feeding material much better adapted to storage or transport than bran packed in the usual manner. The cakes are eaten by horses in a dry state, while for other animals they are broken up, and prolonged tests have demonstrated that cakes are quite as nutritious as loose bran while the matter of storage and transport will be self-evident to every one engaged in the trade. The specimen of samples which I submit to your critical inspection have now been over a year



in my possession; they have been exposed to all sorts of atmospheric influences and have been somewhat abused by frequent handling. I take pleasure in showing you samples of compressed spring and winter wheat bran, shorts, rye bran, wheat dust and dirt from cleaning-machines.

#### MOVING FOR UNIFORM WEIGHT STANDARDS.

Secretary Barry, of the Millers' National Association, sends the following communication to THE MILLING WORLD: At the recent convention of the Millers' National Association the subject of establishing a uniform standard of weights for sacked flour and corn-meal was carefully considered, and the following is a copy of the resolution signed and presented by a special committee appointed for the purpose:

*Whereas*, There is now no law defining the weight of flour when divided into parts of a barrel and sold in sacks, and

*Whereas*, This great staple is sold largely in broken packages put up in sacks, and

*Whereas*, One state makes one standard, while other states make other and different standards, and some states have no law on the subject, thus causing great confusion among the different states, doing much harm to the commerce and trade of the whole country, therefore

*Resolved*, By the Millers' National Association, in convention, that we urge upon Congress to pass a uniform law regulating the weights of flour and corn-meal when sold in sacks as parts of a barrel, thus giving to the country a uniform standard of weight.

*Resolved*, That each miller be requested to write to his respective Representative immediately upon the assembling of Congress and urge attention to this subject.

This resolution, with a motion following offered by Mr. D. R. Sparks, of Alton, Ill., "I move that a special committee of three be appointed to see to that and urge some congressman to put a bill of that kind through," was unanimously adopted by the convention, and the President appointed Messrs. D. R. Sparks, Homer Baldwin and J. B. A. Kern to act upon this committee.

#### CANADIAN MILLERS IN COUNCIL.

The millers of the Province of Ontario, Canada, met at Toronto, on July 9, on a call issued by the Dominion Miller's Association, to discuss the critical condition of Canadian milling in consequence of the inequitable duties on grain and flour, which discriminate seriously against Canadian millers and encourage the importation of American flour. The meeting was attended by the following millers:

Charles Sutton, Campbellford; T. O. Apps, Brantford; John C. Hay, Listowel; W. Bradley, Flesherton; H. Birge, Eramosa; W. J. Baldwin, G. S. Baldwin, Aurora; W. J. Hornson, Teeswater; F. W. Hay, Listowel; J. D. Flaville, Lindsay; M. McLaughlin, Toronto; P. Macdonell, Collingwood; Muldrew, Davidson & Co., Peterborough; A. H. Baird, Paris; A. M. Howson, Teeswater; J. W. Pearen, Brampton; J. Spindtoe, Cookstown; George Shepherd, Primrose; James Hodd, Stratford; Thos. O'Neal, Paris; F. W. Weeks, Perth; H. M. Baird, R. J. Stark, R. J. Spink, Toronto; Thomas Todd, Galt; W. F. Lewis, Grimsby; Jas. Fair, Clinton; Fred. Heimbecker, Hanover; W. Stuart, Mitchell; John Carr, Wingham; Wm. B. Hutton, Wingham; Alex. Watt, Palmerston; Thos. F. Wallace, Woodbridge; F. R. Wadsworth, Weston; Grover Brothers, Fergus; Angus Plewes, Markdale; Wm. Plewes, Creemore; F. L. Green, Greenwood; W. B. Robson, Hamilton; W. S. Morgan, Hamilton; John McFarlane, Dumblane; Ralph Marshall, Plattsville; Thos. Goldie, Guelph; Jas. Cumming, Lyn; J. H. Dracass, Streetsville; J. M. Brown, Carleton Place; Thos. Quick, Floradale; J. G. Bechtel, Burford; Wm. Fearson, Singhamton; Jos. Hamilton, Glen Huron; J. A. Younge, Embro; D. R. Ross, Embro; A. Wolverton, Wolverton; J. C. Vanstone, Bowmanville; Peter J. Griffin, Mount Vernon; P. R. Hoover, Green River; Ekhardt Stern, Wellesley; James King, Sarnia; McDonald & Thomson, Woodstock; M. F. Beach, Iroquois; Peter Quance, Delhi; Geo. McDonald, Yarker; R. Rayburn, Deseronto; J. B. Schmidt, Newton Brook; Sandy McVean, Dresden; Fred. Rallins, Madoc; N. Boswell, Wyoming; John Galbraith, Allandale; J. Parkmann, Shelbourne; P. Powell, Dresden; Wm. Galbraith, Toronto; Charles Whitlaw, Paris; George Hamilton, Toronto; W. Y. Emery, Port Burwell; Robt. H. Vick, Orillia; L. Cheyne, Brampton; Wm. Thompson, Brampton; D. McLean, Lakefield; John Reid, Toronto; Cook & Reith, Hensall; John E. Ratz, Gadshill; George Geddes, Tilsonburg; Andrew Dalrymple, Simcoe; Alex. Wood, Smith's Falls; P. R. Howard, Hagersville; Frederick Haines, Cheltenham; Robert Shirra, Caledonia; James Jones, Thorold; H. Barrett, Port Hope; Jas. L. Hamilton, New Hamburg; T. Mooney, Alexandria; Menno Snider, Conestoga; George Vick, Orillia; A. Dobson, Beaverton; Peter Ritchie, Orillia; James Thompson, Orillia; John Lee, Walkerton; N. Winger, Ayton; M. N. Stephens, Glencairn; Thos. M. Syer, Thamesville; I. Hilborn, Blair; Jas. Carruthers, Toronto; W. G. Bailey, Hamilton; R. A. Thompson, Lynden; H. J. Gould, Uxbridge; W. H. Fennimore, Burlington; Thos. Bell, Wm. Austin, Cargill; McIntyre & McDonald, Oxford Mills; Jos. Williams, Glen Williams; E. S. Edmonson, Oshawa; James Norris, St. Catharines; James Stark, Paisley; Wm. Brown, Paisley; Geo. H. Wilkinson, Buttonville; Ewen McKenzie, Kirkfield; Wm. McClain, Ballycloy; R. B. Clement, Walkerton; J. Steinmiller, Walkerton; E. Peplow, Port Hope; James Major, Sarnia; A. Hilborn, Salem; John Lummis, Wyebridge; J. D. Saunby, London; Samuel Lukes, Bradford; H. A. Mullhern, Peterborough; Geo. Hilliard, Peterborough; William Matthews, Gadshill.

The meeting was called to order by C. Whitlaw, of Paris, who briefly outlined the difficulties under which the millers

of Canada labor, all of which are known to the readers of THE MILLING WORLD. The Dominion Millers' Association, dormant for some years, was reorganized by the election of the following officers: President, J. C. Hay, Listowel; vice-president, John Brown, Toronto; treasurer, M. McLaughlin, Toronto; secretary, David Plewes, Brantford. The secretary will open an office in Toronto and have a clerk in constant attendance. The expenses of the association will be assessed on the mills represented as follows: Mills producing 100 barrels daily, \$5 per annum; 200 barrels, \$10; 300 barrels, \$15, and so on.

The condition of Canadian milling was discussed. Mr. Wareup, the first speaker, stated that the first cause of the depression is the competing mill; that the Dominion has 1,200 rollers mills and 1,100 buhr mills; that these 2,300 mills can produce 18,000,000 barrels a year, while the Dominion can consume only 5,000,000 barrels; that the mills can be kept going only by exporting, and that a higher duty on flour is needed to secure to the Canadian millers their own home market. James Stark stated that the change to rolls, buying wheat ahead on speculative value, grain-gambling in Chicago, the creation of monopolies, the over-production of flour, and the sacrifice by government of Canadian milling in the interest of American milling and of the Maritime Provinces were the causes of the depression. David Plewes presented the political situation, asserting that the present duty on grain and flour is a bonus of \$50,000 to \$75,000 to American millers to grind flour for Canadian consumers. W. R. Wadsworth blamed the millers themselves for the conditions of which they complained, saying that one miller could not trust another, and that he would like to see England induced to favor colonial flour as she used to do before the days of reciprocity. W. Emery said that the millers had driven out the grain-buyers by paying more for wheat than it was worth, that they last fall paid \$1.17 for wheat worth only 90 cents or \$1, and that they now blame the government because they make no money. He said that under reciprocity Canadian millers could not sell a barrel of flour in the United States, but Mr. Plewes said that under reciprocity the Canadian miller could buy wheat in St. Louis and sell flour in New York. Mr. Goldie said the duty on wheat should be 20 per cent., that too much had been paid for wheat, and that many thought the Toronto Board of Trade had deliberately raised quotations to make millers pay more for wheat than it is worth. Mr. McLaughlin said that the best miller was the man who made the best separations. That principle should be applied in the present case. The great trouble now was the state of the wheat and flour duties. The prime grievance was embodied in a resolution he proposed to move. It was as follows:

"That this meeting is aware of the efforts made during the last session of Parliament by the Millers' Committee to have the error in the wheat and flour duties corrected, and that we do further assert that the prime object of this mass meeting of millers is to endorse the work done last winter and perfect the organization of Canadian millers with the purpose of obtaining justice."

Despite attempts to amend this motion, it was adopted. The convention adopted the following resolution:

"That Messrs. Baird, McLaughlin, Galbraith and W. Stark be a committee to present the following resolution to the Toronto Board of Trade: 'Whereas, the members of the Toronto Board of Trade have unanimously declared in favor of granting justice to the millers of Canada in the matter of the tariff on flour and wheat, and whereas, her Majesty's Government at Ottawa having disregarded their prayer on this behalf, be it resolved that we, the millers of Ontario, do urge upon the Toronto Board of Trade again to take action in this matter, and would respectfully call the attention of the board to the importance of the interests at stake.'"

It was decided on motion:

"That a special appeal to the farmers of Ontario and Manitoba be issued, containing the tariff on wheat and flour, the effect of such tariff upon the millers, the taxation paid by Ontario on coal, lubricating oils, belting, mill machinery, farm implements, etc., and also that paid upon breadstuffs by the Lower Provinces, with comparison of rate by population; the effect of the tariff upon the farmer; that 100,000 copies be printed and distributed. That a committee be named to prepare such appeal."

A motion for political action made by John Brown was, after long discussion, laid over to the next annual meeting of the association. The visitors took a trip on the lake on Wednesday, holding a business meeting on the steamer, and in the afternoon they took a drive through the city.

The session was concluded on Wednesday. The following executive committee was chosen: Brantford District—



James Hodd, Stratford; Noah Winger, Ayton. London District—J. D. Saunby, London. Toronto District—Isaac Wareup, Oakville. Peterborough District—Mayor Peplow, Port Hope; — Meldrum, Peterborough. Ottawa—Ald. Hutchinson, Ottawa. District organization was discussed. Mr. Plewes pointed out that such organization would keep the millers posted. He said that recently wheat dropped 18 cents a bushel, and that some buyers, not knowing that, went on and paid 18 cents a bushel more than was paid by those who knew that prices had dropped. President Hay told what good had been accomplished by organization in his district. He opposed exchange and said his neighbors had reduced the weight from 40 pounds to 38 and 39 pounds of flour for 62 pounds of white wheat. It was decided that the central committee promulgate a uniform system of exchange and send it to the local organizations for consideration. Other subjects treated were wheat on cars, railway rates, local organizations, constitution and market quotations. The convention then adjourned.

### DREADFUL MILLING POETRY.

#### THE MILLER'S APPRENTICE.

When I was a lad I served a term  
Of apprenticeship to a milling firm,  
And I packed the flour and I swept the floor,  
And I trundled in the grist from the mill's front door,  
And I figured up the toll so judiciouslee,  
That now I run a mill of my own will free.  
In taking toll I learned so fast  
That my days of drudgery quickly passed,  
And they put me at once to pecking stone,  
Which gave to my position additional tone.  
And I pecked those stones so carefullee  
That now I own the mill and machineree.  
For cracking buhrs I acquired such a bent  
That for a grinder they thought me meant;  
And to feel the chop and scrutinize the bran  
I learned to do as well as the miller's head man;  
And I cleaned that bran so perfectlee,  
That I made a barrel of flour out of bushels three.  
And when they found what I could do,  
They made me foreman with but duties few;  
But I ran that mill with such a grace  
That they gave to me a partner's place;  
And I used that place so beautifullee  
That soon I owned the mill while the owners owed me.  
Now operatives all just learn of me  
And follow my advice like the Rule of Three;  
If you want to run a mill and own it whole,  
Remember but the science of taking toll.

—American Miller.

### POINTS IN MILLING.

TIMES have changed with the millers of this country. To-day I find scores of successful flour-makers, who have not a pick mark on their hands, and who know no more about dressing a buhr than they know about the grammar of the Zulu language, providing that language has a grammar. Of course, while these millers may not know how to dress buhrs, they may know how to utilize them thoroughly and profitably in grinding.

MY ADVICE to a young man, who desires to learn milling, is to take the first steps in a small mill, where he will have a chance to learn all about the buhr as well as the roll. In the extensive mill he sees or learns only one thing at a time, and what he learns is not acquired in consecutive order. He is quite as apt to be set to work at the packer as at the grain-cleaning machine, and so he fails for a time to understand what he is doing, or what relation one step has to another step in the process. In the small mill his chances are infinitely better for acquiring a thorough ground knowledge of flour-making as a whole. When that is acquired and mastered, the learner is in position to pursue with profit his labor in a large and complicated mill, where he can by actual practice learn the extreme nicety of every step. The large mill hits him only in spots. The small one, with its inevitable buhr and its possible roller-mill, hits him all over and prepares him for future symmetrical excellence.

EVERY miller in these days should learn to dress and manipulate the buhr. This is an age of rolls, but the buhr is not out of the field, by any means. In fact, the sales of buhrs continue large, despite the generally supposed predominance of the rolls. The man who learns his trade in an exclusive roller mill has learned only a part of it. Even though it may cost him time and money to do so, he should master the buhr.

THOROUGH and perfect management of the mill implies absolutely perfect management of the tail. An old veteran, Mr. J. Murray Case, once said: "Give me a man who can manage the 'tail' of my mill, and he shall become my head-miller."

THERE is a world of philosophy in that remark. Mr. Case understood, as not all flour-makers are willing to understand, the value of management that kept from the bran all real flour material, while sending to the bran-pile all the real bran material. It may seem to be a trite statement, but it is a fact, nevertheless, that very many millers, who do very good and very fine work at every other point, utterly fail when they come to handle the tail. The most superficial examination will convince one of that fact.

MR. KICKER, grumbling over hard times, small profits, dear wheat, cheap flour and glutted markets, are you thoroughly well aware what is going on at the tail end of your concern? Examine your bran. If you do not understand your business well enough to examine it, engage a man who can, and find out whether or not your missing dollars have not been sent to bran to fatten some other man's live stock. Perhaps your bran is very popular, goes off like hot cakes, and is very satisfactory to the purchasers. If so, look out! A popular bran is generally a bran rich in flour. Such a bran generally does not mean a miller rich in dollars. Let your motto be: "Poor bran, rich miller. Rich bran, poor miller."

A dispatch from Palmyra, Wis., dated July 11, says: The green midge and what is thought to be the Hessian fly, which some 20 years ago destroyed every thing in this vicinity, have this week appeared in myriads, destroying every thing infested by the insects. Whole acres of potato vines are dead from their ravages, and farmers a few miles north of here are burning their grain fields. Thus far the corn-fields escape. The present outlook is very discouraging, and farmers are despondent.

EVEN the most optimistic member of the Millers' National Association must admit that there is a superabundance of deadness about that body. It is a change of aims that is needed, not merely a change of officers.

## SPECIAL NOTICES.

### BOLTING CLOTH.

Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order.

CASE MANUFACTURING CO..

Columbus, Ohio.

Office and Factory, 5th Street, north of Naughten.

## TOLEDO MILL PICKS AND STONE TOOL MFG. CO.

Manufacturer

and Dresser of

## MILL PICKS.

Made of the best double-refined English cast steel. All work guaranteed. For terms and warranty, address, GEO. W. HEARTLEY, No. 297 St. Clair Street, Toledo, Ohio. Send for Circular.

N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

ALSO MANUFACTURERS OF

Shafting, Pulleys, Hangers, Coupling, Machine and Jobbing, Etc., Etc.





**ANOTHER WAR HORROR.**—It is stated that a German artillery officer has succeeded in making a new explosive from carbolic acid, and that a shell filled with this material possesses a power hitherto-unattained. Experiments made with these shells, thrown from mortars, have all, it is stated, proved highly successful. This report further states that after the shell has burst, the component parts of the mixture will possess an explosive force.

## GENERAL NOTES.

FOLLOWING is the official list of the new National Banks incorporated during the fiscal year ending June 30, 1889, together with the aggregate of their capital:

State.	No. of Banks.	Capital.	State.	No. of Banks.	Capital.
Alabama .....	3	\$200,000	Missouri.....	8	\$2,950,000
Colorado .....	3	250,000	Montana.....	2	175,000
Connecticut ....	2	100,000	New Hampshire	2	125,000
Dakota.....	2	150,000	Nebraska.....	12	690,000
Georgia .....	4	250,000	New Jersey.....	4	250,000
Idaho.....	1	50,000	New York .....	1	65,000
Illinois.....	6	375,000	Ohio.....	3	750,000
Indiana .....	3	320,000	Oregon .....	7	350,000
Iowa .....	6	600,000	Pennsylvania..	12	1,250,000
Kansas .....	12	835,000	Tennessee.....	5	350,000
Kentucky .....	6	675,000	Texas.....	17	2,060,000
Louisiana.....	1	200,000	Utah.....	1	250,000
Maryland .....	3	235,000	Virginia.....	4	300,000
Maine .....	1	50,000	Washington Ter.	9	860,000
Massachusetts...	4	450,000	Wisconsin .....	2	150,000
Michigan .....	5	350,000	Wyoming.....	1	50,000
Minnesota .....	4	250,000			
				156	\$15,970,000

### COTEMPORARY COMMENT.

Brazil is buying wheat in India and Russia, turning out flour in its own mills, and diminishing imports from the United States. For the year ending July 1, 1888, the United States exported 585,000 barrels of flour to Brazil; in 1886-7, 749,000 barrels; in 1885-6, 542,000 barrels: for ten years ending July 1, 1885, the annual average was 625,000 barrels. For the current year, ending with July 1, the indications are that the flour exports to Brazil will not be less but probably somewhat in excess of the preceding year. The milling business in Brazil therefore is probably not doing so much at lessening the exports from this country as in preventing their enlargement.—*Cincinnati "Price Current."*

We do not thank Mr. Baldwin a bit for his buncombe resolution complimentary to the milling press. His resolution has a string to it. "No undue preference shall be shown to any one journal; but that each and every journal, so long as its conduct so justifies, shall be placed on an equality." This is, indeed, cool, to say the least. "Its conduct," for-

sooth! Has the association the keeping of the conduct of any milling paper or all of them? We are placed on our good conduct. Well, if Mr. B. or the Association thinks that the press can be intimidated, a thought is harbored that is ridiculous. The press can not be muzzled. The press can do without the association but the association can not do without the press.—*St. Louis "Merchant, Miller & Manufacturer."*

The insect scare in Indiana is subsiding and a good yield is expected after all. The bug or louse is simply the insect that infests wild plums in the northwest. When the frost came and drove them out of the plum trees they went east. *Minneapolis "Market Record."*

The corn crop is late, but great improvement is probable under existing favorable conditions. There seems to be plenty of old corn in this country. It is not moving, however, at present time.—*New York "Produce Exchange Reporter."*

The Illinois crop and weather bulletin reports the rapid and satisfactory progress of wheat harvesting and a marked improvement in the corn prospects. Oats and grass look splendidly.—*Chicago "Daily Business."*

All who are interested in reaching the millers of the country are interested in a first-class flour-mill directory, which shall at least contain all the names and addresses of all the live mills and millers in the country, without being lumbered with a lot of dead ones. Such a directory we have now well under way and are ready to receive orders for the same to be paid on delivery. The price will be ten dollars.—*St. Louis "Miller."*

The experience of the past year or two has amply proved that the custom miller is in a far better condition to withstand a depression of the flour markets than the big millers who must depend upon a large export and a lively domestic trade to keep their mills running. It has been known for some time that the millers of Minneapolis are hoeing a tougher row than ever before in their history. One of the most prominent among them, it is reported, came within an ace of going under last fall, and but for the help of friends would to-day be a bankrupt.—*Kansas City "Modern Miller."*

### MILLING PATENTS.

Among the patents granted July 2, 1889, are the following: Elijah P. Ellis, Oak Hall, Kan., No. 406,038, a flour-bin.

Walter A. Bradley, Buffalo, N. Y., No. 406,254, an automatic grain-scale.

John H. Day, Albany, N. Y., No. 406,270, a process for making dry flour-paste, which consists in manufacturing flour-paste into a dry form by feeding liquid paste through a suitable slot into a cylindrical receptacle at or near the top thereof, and forcing hot air into contact with the paste as it is fed into the receptacle, rapidly eliminating the water therefrom by evaporation, the paste dropping on the bottom of said receptacle in a dry form.

Andrew Lamberton, Coatbridge, County of Lanark, Scotland, No. 406,355, a grinding-mill.

Chas. Barnard, Moline, Ill., No. 406,384, a bolting-reel.

Heman A. Barnard, Moline, Ill., No. 406,385, a grain-scourer.

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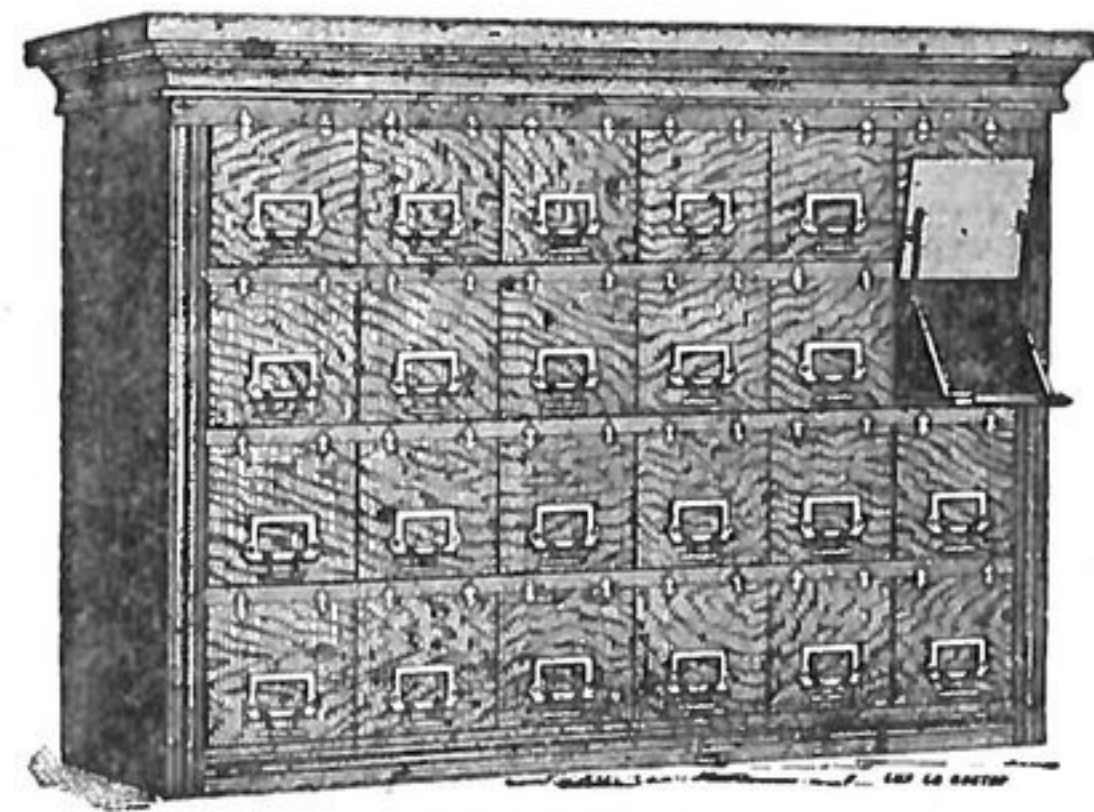
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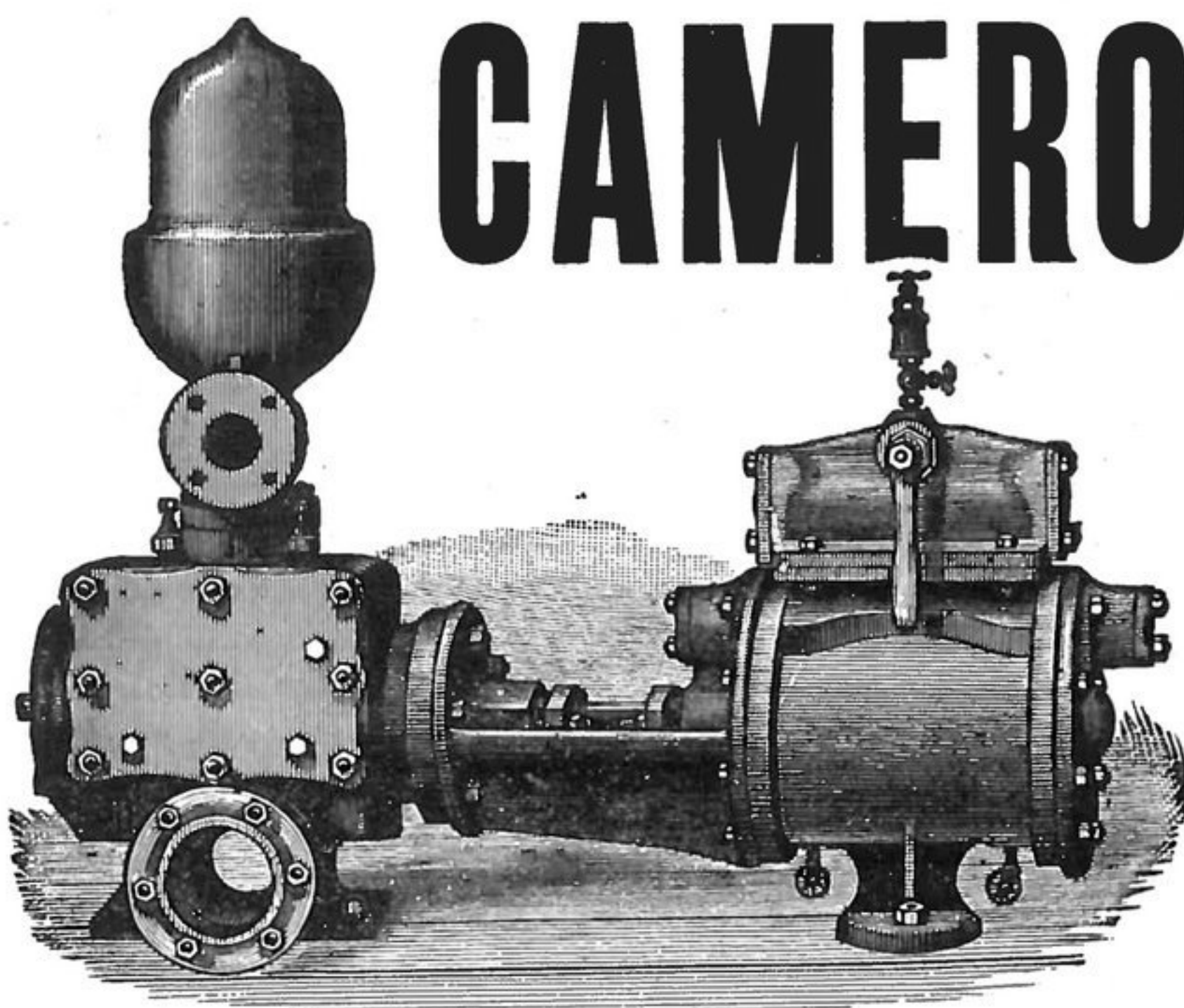
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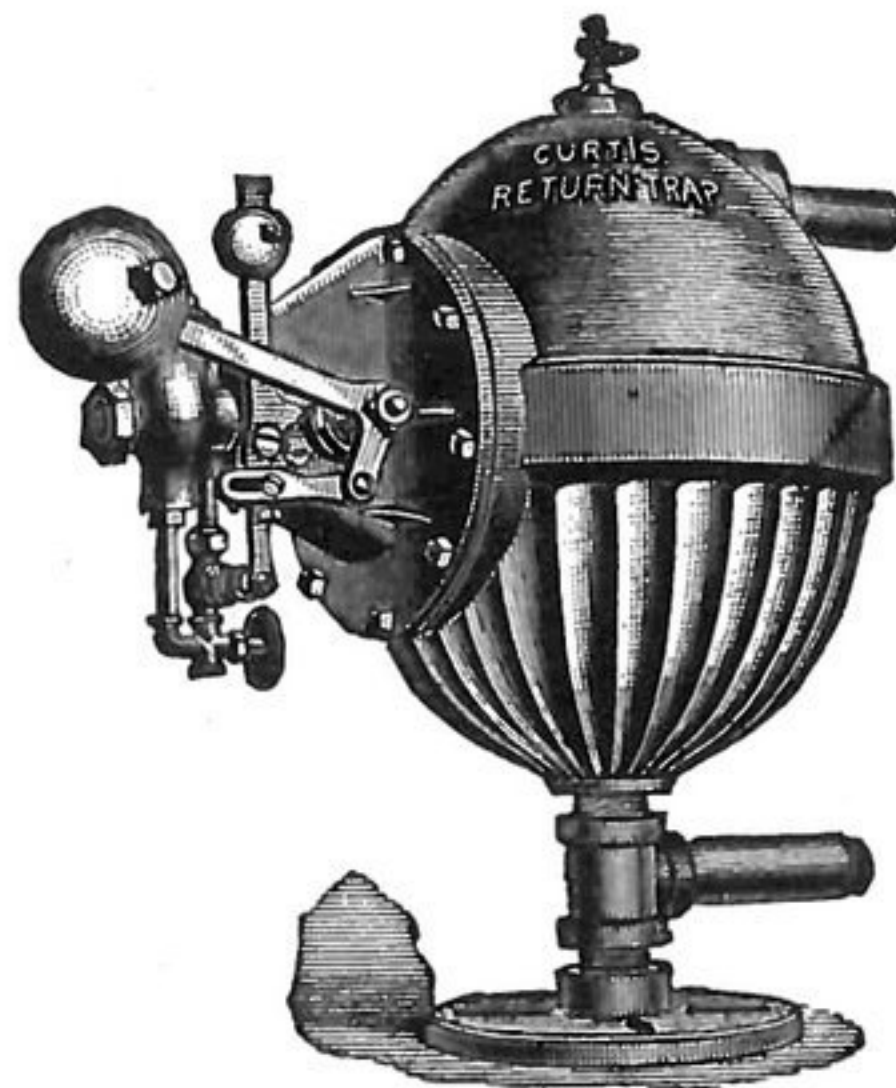
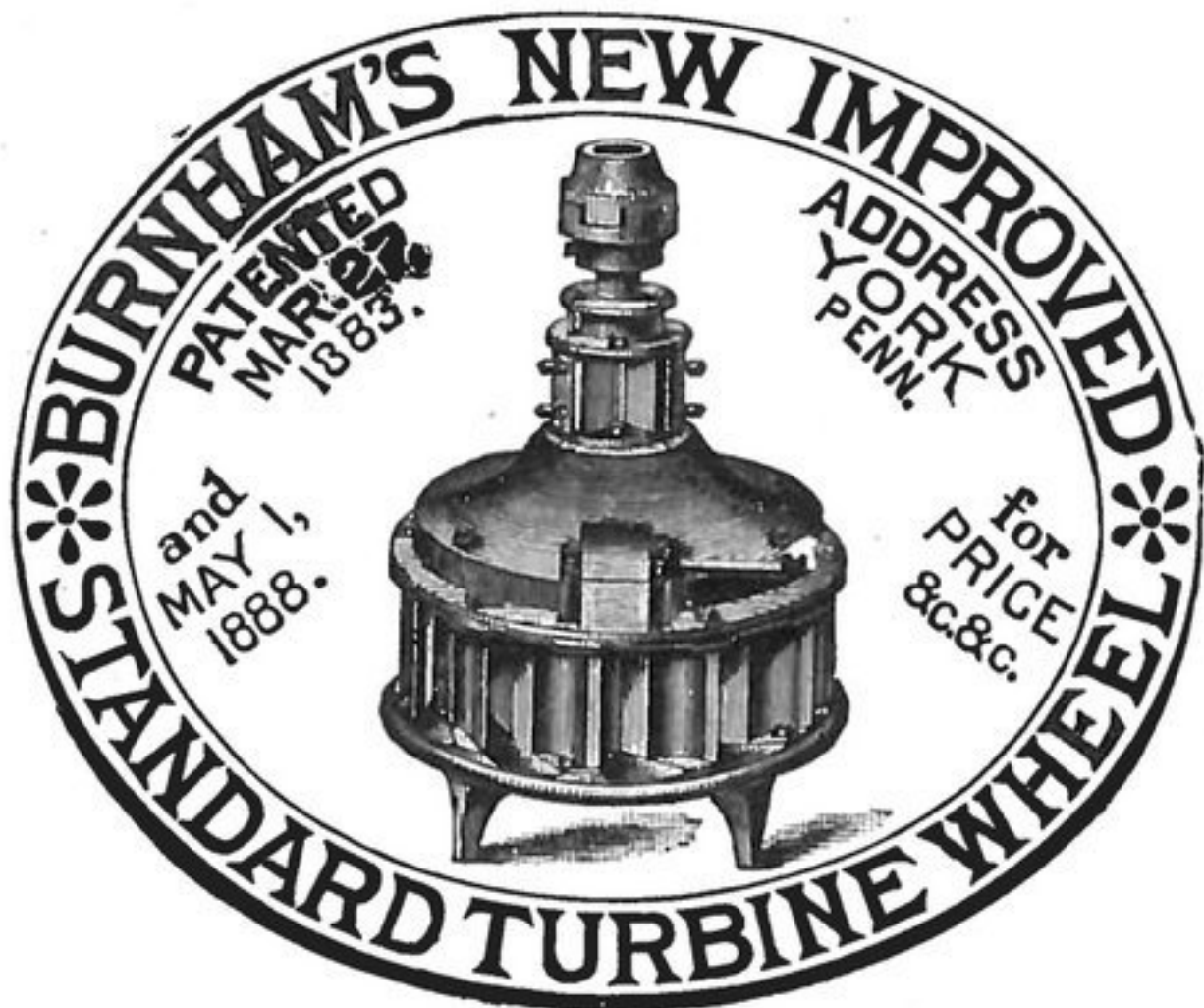
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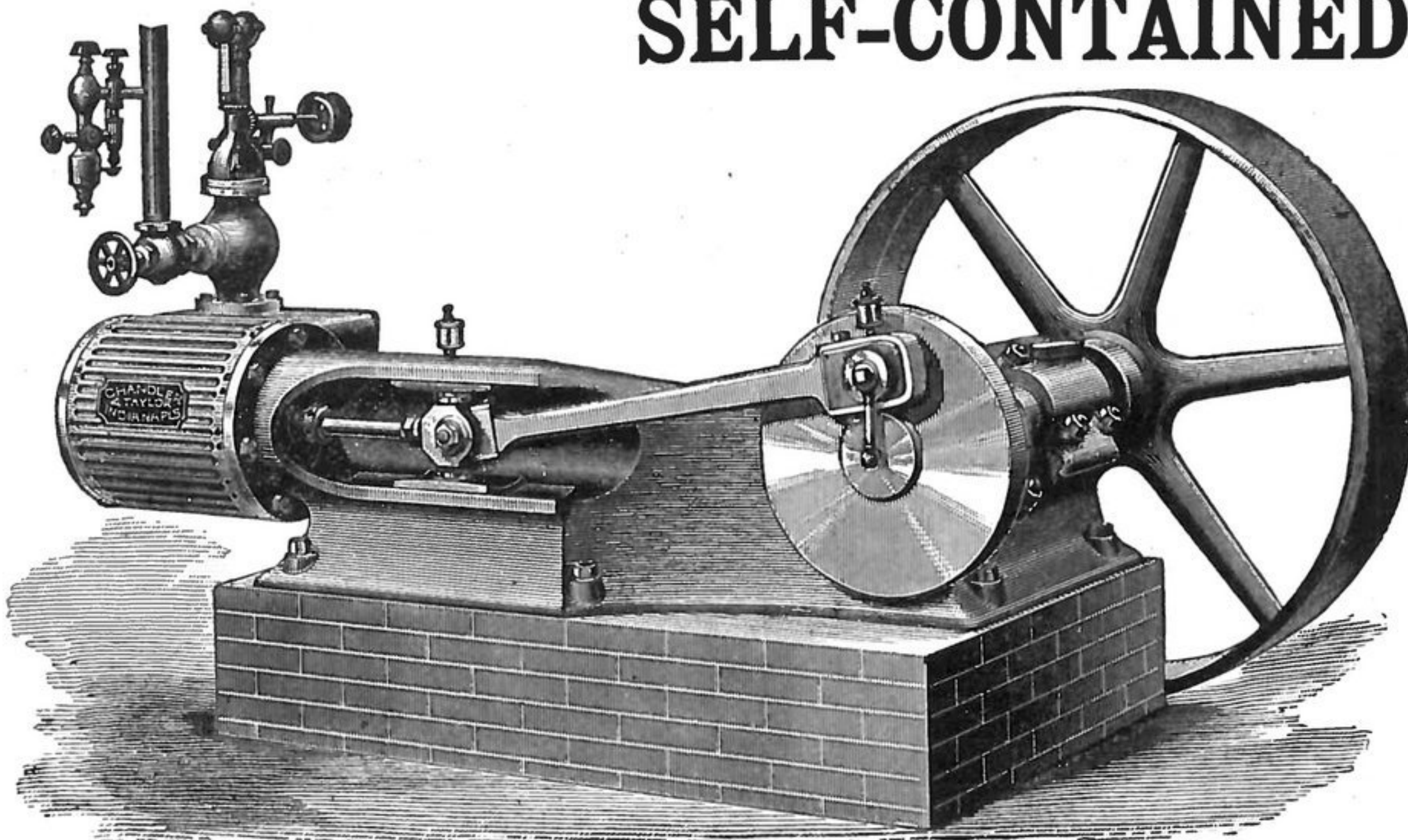
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# NOTES & NEWS

Benton, Ark., men will build a flour-mill.  
 John Baker's mill, Greentown, O., burned.  
 C. I. Cole, miller, Hinesburg, Vt., sold out.  
 Athens, Ga., men form a flour-mill company.  
 Wm. Mitchell, miller, Detroit, Mich., is dead.  
 The Cleveland, Tenn., Flouring Mills enlarge.  
 Wm. Gray, Piggott, Ark., will build a grist-mill.  
 The Taylor Mill Co., Seattle, Wash., incorporated.  
 Nehl & Kruger, feed-mill, La Porte, Ind., dissolved.  
 Kröger & Schenk's grist-mill, Hartland, Wis., burned.  
 J. Fries's grist-mill, Millville, N. J., burned; loss \$3,000.  
 J. J. Carter, French Camps, Miss., improved his flour-mill.  
 H. Warren & Son, Oregon, Tenn., improve their grist-mill.  
 The Alliance Roller Mill Co., Cisco, Tex., build an elevator.  
 Yates & Carson, Ringgold, Ga., want corn-mill machinery.  
 P. H. Shankel, Yellow Springs, Md., improved his flour-mill.  
 J. L. Rowe, miller, Bowling Green, Ky., attached and assigned.  
 Turner & Oates, grist-mill, Mobile, Ala., now Wm. Turner & Co.  
 The Fisher, Tex., Mill & Gin Co. want machinery for a corn-mill.  
 J. W. Waddell's mill, Lexington, Mo., burned; loss \$2,000; insured.  
 J. M. Robinson, Loudon, Tenn., remodels his mill to the short system.  
 Hagan & Stanley, Loopee, Ky., move and improve their flouring-mill.  
 Wilson Bros. & Brace, millers, Rochester, N. Y., sold to Campbell & Hardy.  
 The Atlas Milling Co., Los Angeles, Cal., dissolved, H. H. Meschendorf retiring.  
 J. Stover, Manassas, Va., wants roller machinery for a 25-bushel per hour corn-mill.  
 Hommerburg's flour and feed mill, LaCrosse, Wis., burned; loss \$2,500; insurance \$1,000.  
 Hinebaugh & Merriam's elevator, Brainerd, Neb., burned; loss \$3,000; insurance \$2,000.  
 W. R. Myers, Greensburg, Ky., starts a roller mill; he wants an outfit of machinery.  
 The California wheat crop, which is now arriving in San Francisco, is estimated at 72,000,000 bushels.  
 C. E. Idlle, miller, Germantown, Pa., has had judgments amounting to \$13,750 entered against him.  
 B. R. Moffett, Waxahatchie, Tex., has enlarged his flour-mill and is building a 40,000-bushel elevator.  
 J. R. Bronghurst, miller, Marshallton, Del., is succeeded by the Marshallton Iron Works, incorporated.  
 The Minneapolis & Northern Elevator Co.'s elevator, Ajata, North Dakota, burned; loss \$8,000; fire set by tramps.  
 Johnson, Kirkpatrick & Co., Lebanon, Tex., move to McGregor and start a 75-barrel roller mill; they want machinery.  
 The Coffee County Farmers' Alliance, Manchester, Tenn., want machinery for a new 40-barrel short-system roller flouring-mill.  
 D. H. Meeker's elevator, Danbury, Conn., burned; loss \$10,000. Incendiarism was suspected, and Daniel McCreedy was arrested on suspicion.  
 The J. B. Allfree Co. have taken a contract for a 75-barrel mill from The New Sharon Mill Co., New Sharon, Ia., including an Allfree automatic engine, &c., &c.  
 The experimental farm at Brandon, Man., Canada, reports that where frozen wheat has been used as seed the plant is making poor growth and showing lack of body.  
 The J. B. Allfree Co. have sold special corn-meal milling machinery, including the "Keystone" 4-high corn-mill, to Noel Bros., Indianapolis, Louis Kamp, Mount Carmel, Illinois, and Sprague, Cratty & McKernan, Ostrando, O.

The Nashville, Tenn., Mill Co. will increase capital stock and build another mill. President Wm. Litterer can give information.

Private advice from Manitoba and the northwest say that the wheat crop has been permanently injured by the weather. Not more than one- or two-thirds the average yield is expected.

The J. B. Allfree Co., Indianapolis, Ind., have taken a contract for a 70-barrel mill from Weaver, Miller & Co., North Grove, Ind., in which will be placed an Allfree automatic engine, as well as an entire outfit of their machinery.

A dispatch from Minneapolis, dated July 10, printed in the New York Sun, says: Articles of incorporation of the Washburn-Crosby Company, with a capital of \$500,000, were filed here to-day. This company controls the Washburn "A," "B" and "C" mills in the city, with a daily capacity of 6,800 barrels of flour, and is, next to C. A. Pillsbury & Co., the largest milling firm in the world. This reorganization lets United States Senator Washburn out of the concern and intensifies the rumors that he is in financial straits. He parted for Europe to-day, and report says that he is practically bankrupt. His elegant residence in this city, which is the finest in the Northwest, is closed, and the servants are looking for other situations.

The Buffalo, N. Y., Express says: An unusual number of corn shortages from Chicago have come to notice lately, but it appears that those reported were very short of the real fact, for it is now stated that the Chicago elevators show a complete state of demoralization. The propeller Cuba was actually 1,565 bushels over while the barge W. A. Sherman, of the Hecla's tow, unloaded but a short time after her, was 497 bushels short. The Hutchinson's shortage of 200 bushels has been reported, but the Lyon's of 185 bushels has not. The shortage of 287 bushels on the schooner Scotia was on a disputed draft of 300 bushels in Chicago, and when the cargo was weighed over here the dispute was settled by allowing the amount. But this number of shortages and overruns is said to be only a part of the loose business that Buffalo tallymen have discovered in the Chicago handling. This would be enough for a starter, it was thought. Isn't it about time we heard from Chicago?

## BOOKS AND PAMPHLETS.

The August number of the *Century* contains a chapter on "Lincoln and the Churches" in the Lincoln History, by Messrs. Hay and Nicolay, from which the following is an extract from advance sheets: He was a man of profound and intense religious feeling. We have no purpose of attempting to formulate his creed; we question if he himself ever did so. There have been swift witnesses who, judging from expressions uttered in his callow youth, have called him an atheist, and others who, with the most laudable intentions, have remembered improvable conversations which they bring forward to prove at once his orthodoxy and their own intimacy with him. But leaving aside these apocryphal evidences, we have only to look at his authentic public and private utterances to see how deep and strong in all the latter part of his life was the current of his religious thought and emotion. He continually invited and appreciated, at their highest value, the prayers of good people. The pressure of tremendous problems by which he was surrounded; the awful moral significance of the conflict in which he was the chief combatant; the overwhelming sense of personal responsibility, which never left him for an hour, all contributed to produce, in a temperament naturally serious and predisposed to a spiritual view of life and conduct, a sense of reverent acceptance of the guidance of a Superior power. From that morning when, standing amid the falling snowflakes on the railway car at Springfield, he asked the prayers of his neighbors in those touching phrases whose echo rose that night in invocations from thousands of family altars, to that memorable hour when on the steps of the Capitol he humbled himself before his Creator in the sublime words of his second inaugural, there is not an expression known to have come from his lips or his pen but proves that he held himself answerable in every act of his career to a more august tribunal than any on earth. The fact that he was not a communicant of any church, and that he was singularly reserved in regard to his personal religious life, gives only the greater force to these striking proofs of his profound reverence and faith.



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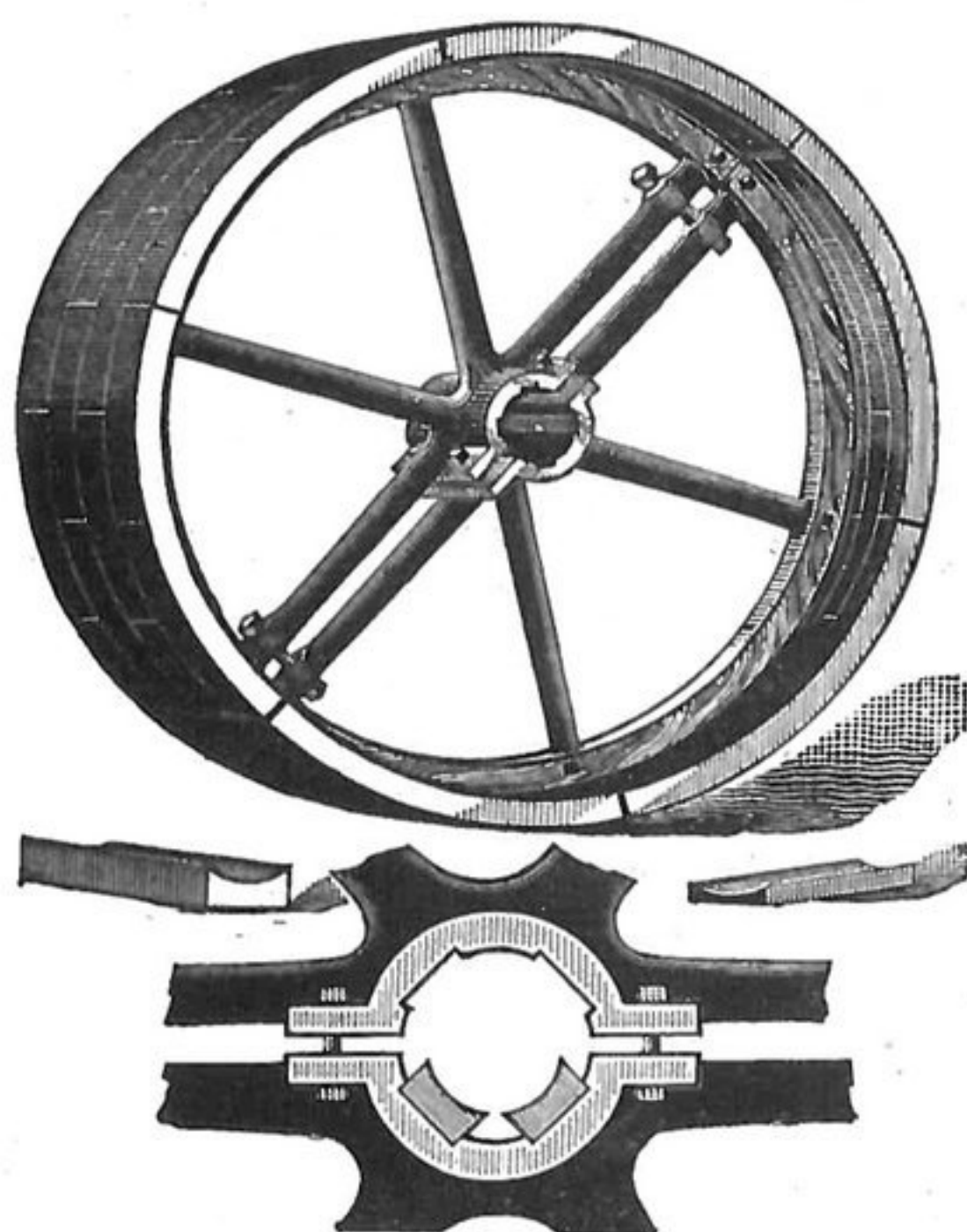


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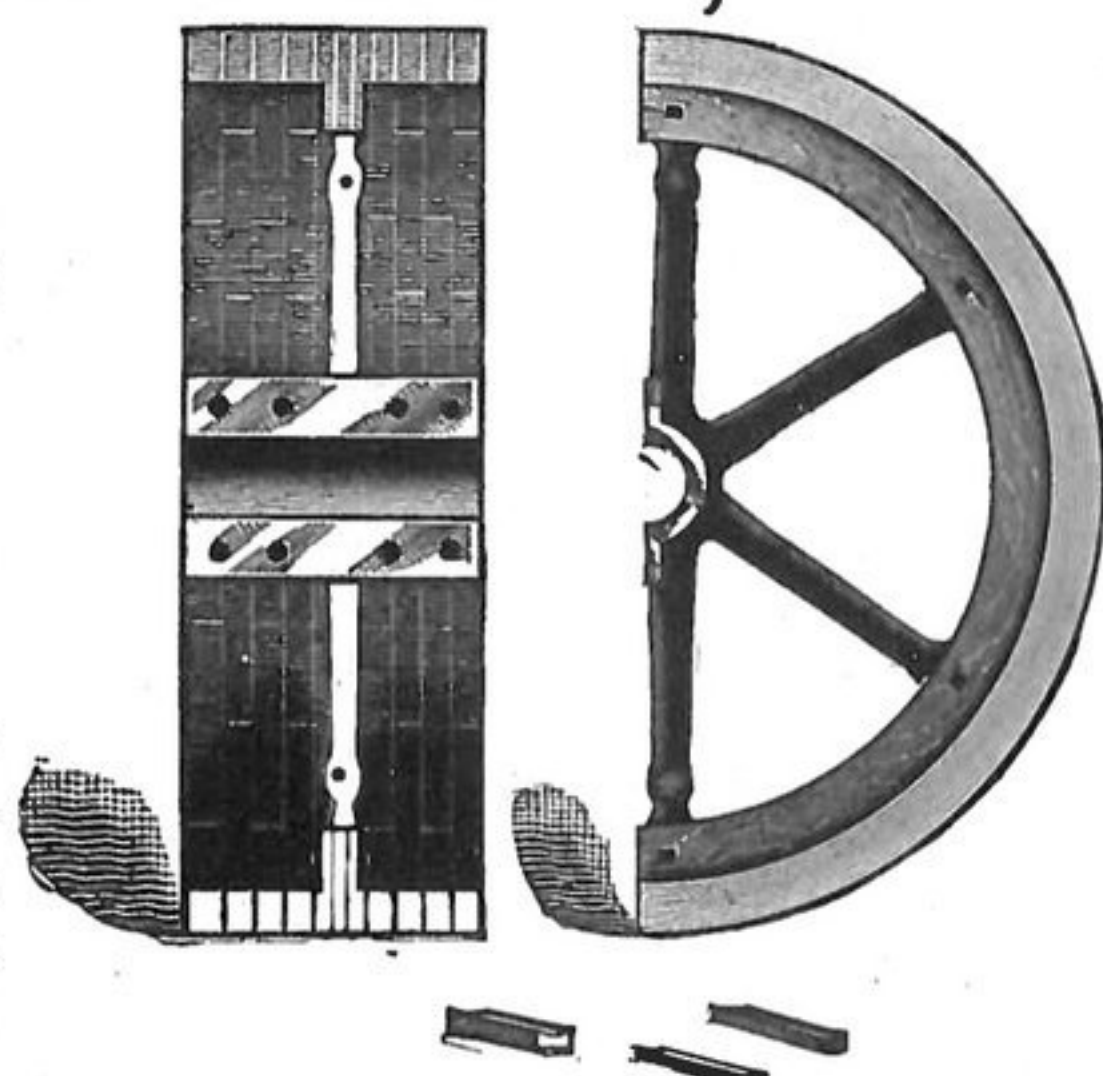
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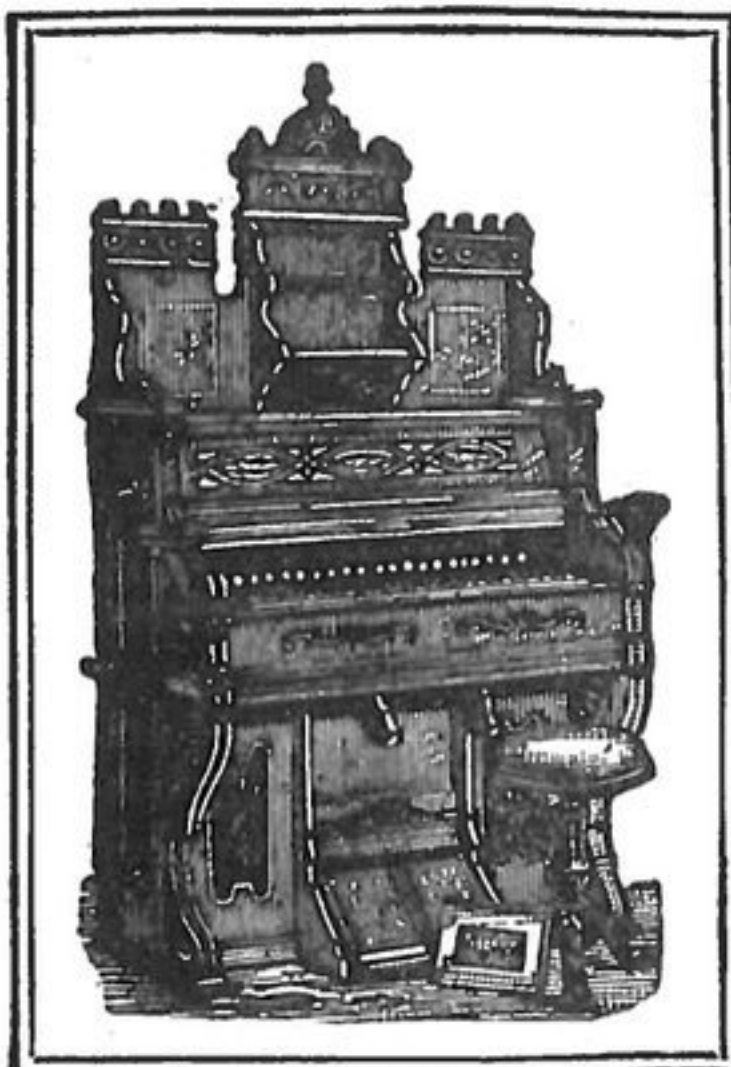
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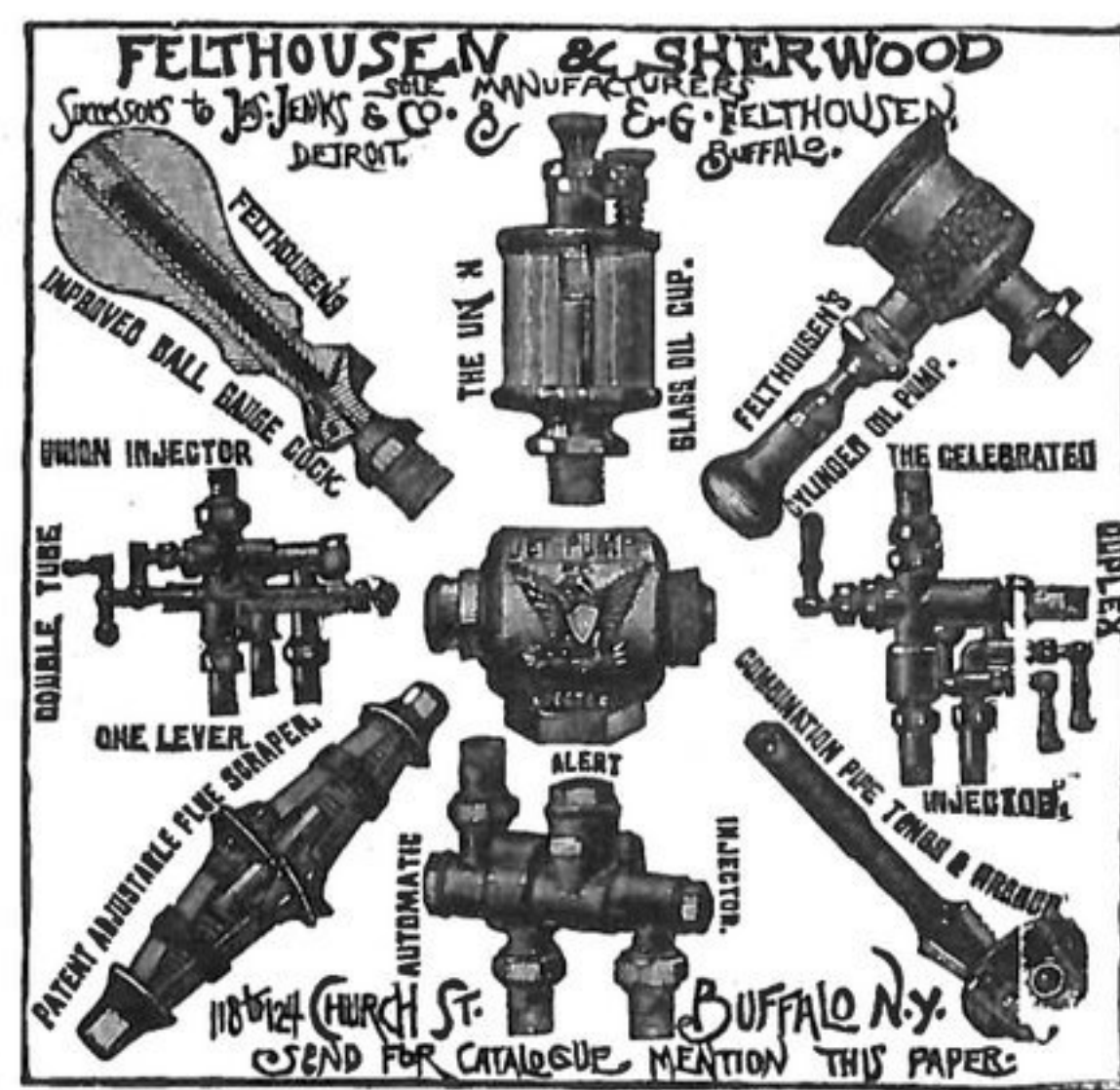
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## EUROPEAN ECHOES.

THE wheat crop of Austria-Hungary is estimated at 106,000,000 bushels, against 137,000,000 last year.

THE "Bulletin des Halles" thinks that if the wheat crop of France is up to the present promises no imports will be required during the coming cereal year.

BEERBOHM estimates that the wheat in the hands of British farmers is about 2,400,000 bushels more than a year ago, but that only about 25 per cent. of it is fit for milling.

RECENT European cables indicate that all the European grain and flour markets are hardening in consequence of the bad condition of the Russian and Austro-Hungarian wheat crop.

LATE advices from Germany state that vegetation is making rapid progress, owing to the warm weather and thunder-showers. The rye is 7 feet high. Wheat is in full ear, and the oats is growing thick and strong.

THE "Neue Freie Presse," of Vienna, has received a letter stating that the crops in Russia, as well as in Austria-Hungary, are in nearly a hopeless condition, and it expresses the fear that in consequence of this Europe will have to get a supply of wheat from the United States.

REFERRING to the improvement in varieties of wheat the Paris "Meunier" says: "The wheats obtained by crossing, the hybrids, give precarious results, because the hybrids return very rapidly to one of the varieties from which they are obtained. The solution of the question lies not in that direction."

WHEAT has been moving out of the Black Sea and Sea of Azov very freely of late. During the week ended June 15 no less than 71 steam and sailing vessels, with full cargoes of wheat, passed through the Golden Horn destined for various European ports. That on steamers bound for England was due from the 5th to 12th of July.

FROM September 4, 1888, to May 28, 1889, the wheat and flour shipments from the United States to Great Britain footed 44,024,000 bushels, and to June 25 the total was 46,204,000 bushels. From September 4, 1888, to June 25, 1889, India sent Great Britain 13,752,000 bushels, Australasia 2,128,000 bushels, Chili 696,000 bushels, La Plata or Argentine Republic 944,000 bushels, Russia 33,512,000 bushels, Germany and Austria-Hungary 13,832,000 bushels, and all other countries 5,824,000 bushels. The grand total for the period named is 118,808,000 bushels.

SAYS the Liverpool "Corn Trade News" of June 24: The week's Indian shipments from Bombay and Calcutta only are very moderate, consisting of 18,000 quarters from Calcutta to the United Kingdom for orders, 2,000 to London via Cape, and 3,000 to the Continent; from Bombay to Hull 9,000 quarters; to Continent 22,000 quarters; total to the United Kingdom 29,000 quarters, to Continent 25,000 quarters; grand total, 54,000 quarters against (from all India) 41,000 quarters last week, 141,000 last year, 264,000 in 1887, and 132,000 in 1886. So far in the season the shipments have amounted to 771,000 this year, 1,540,000 last year, 1,711,000 in 1887, and 1,785,000 in 1886. During the last two seasons about half the total exports of India have taken place during the twelve months just ended.

RECENT reports from Russia say there is likely to be a serious deficiency in the crops of rye and winter wheat, especially in the Crimean crop. A large portion of this crop is used for export, and the deficiency will cause a serious loss to the export trade. The spring wheat is said to be in need of rain though some were reported last week. From reports of the Minister of Agriculture it appears that the

condition of winter wheat in the interior and southern provinces is deplorable. Wheat particularly is winter-killed. The provinces of Poltava, Kharkow, Astrakhan, Podolia, Tchernigow, Kiew, Kursk, Saratow, Simbrisk, Samara, Kazan and Nijni-Novgorod have suffered severely from the cold. The state of winter wheat in the northern provinces was rather satisfactory at the commencement of May. In the northwestern and central provinces the condition of winter wheat was very satisfactory. The spring sowings were more or less backward in the south.

RUSSIAN crop reports continue very discouraging. Of the Azima, or winter wheat crop, three-fourths is believed to be lost, as well as the rye crop, while the Ghirka, or spring wheat crop, will suffer seriously unless rain soon falls. Recent private cables report that credible estimates as to the Russian wheat crop place the probable yield of winter wheat at 70 per cent. and of spring wheat at 15 per cent. below that of 1888. If these estimates be approximately correct, the production would be 91,659,750 bushels smaller than last year, and the crop would compare with previous years as follows:

WHEAT.			
Years—	Winter, bu.	Spring, bu.	Total, bu.
1889.....	29,184,750	133,518,000	162,702,750
1888.....	97,282,500	157,080,000	254,362,500
1887.....	98,770,000	179,095,000	277,865,000
1886.....	39,270,000	121,380,000	160,650,000
1885.....	77,350,000	99,960,000	177,310,000
1884.....	77,350,000	188,615,000	265,965,000
1883.....	52,378,000	166,062,000	218,440,000

FOLLOWING is a summation of the new proposed Portuguese law concerning grain import duties. The faculty of importing foreign wheat will in future depend on the proof of the purchase of at least half as much home-grown wheat bought at a price averaging 52 shillings per quarter. Consequently, if one wish to import 1,000 quarters of foreign wheat, he must prove the purchase of 500 quarters of home-grown wheat. To prevent frauds, which would be unavoidable if the trade in home-grown were to remain free, the whole trade passes into the hands of the Government, who, after receiving the offers of the farmers and the orders for wheat of the millers and merchants, will proceed to distribute the wheat, not according to the requirements of the buyers, but in such a way that each of them receives an equal proportion of the different descriptions of wheat produced in Portugal, the object being to prevent the poor wheats produced in the Alemtejo from being neglected. In compensation the duty is reduced to 13 shillings per quarter, and the importation of flour prohibited. Wonderful as this will appear to any one not acquainted with Portugal, more wonderful it is that merchants and millers have been brought to such a state of desperation under the reign of the sliding scale that many of them would, on the whole, consider even this law an improvement on the present state. The agricultural party is by no means satisfied with the price of 52 shillings per quarter, and, being masters of the Cortes, they will push the interest of their class, regardless of the remainder of the people, their object being the prohibition of all importations as long as there is a grain of wheat in the country, after which foreign wheat is to be imported, milled and sold by the government.

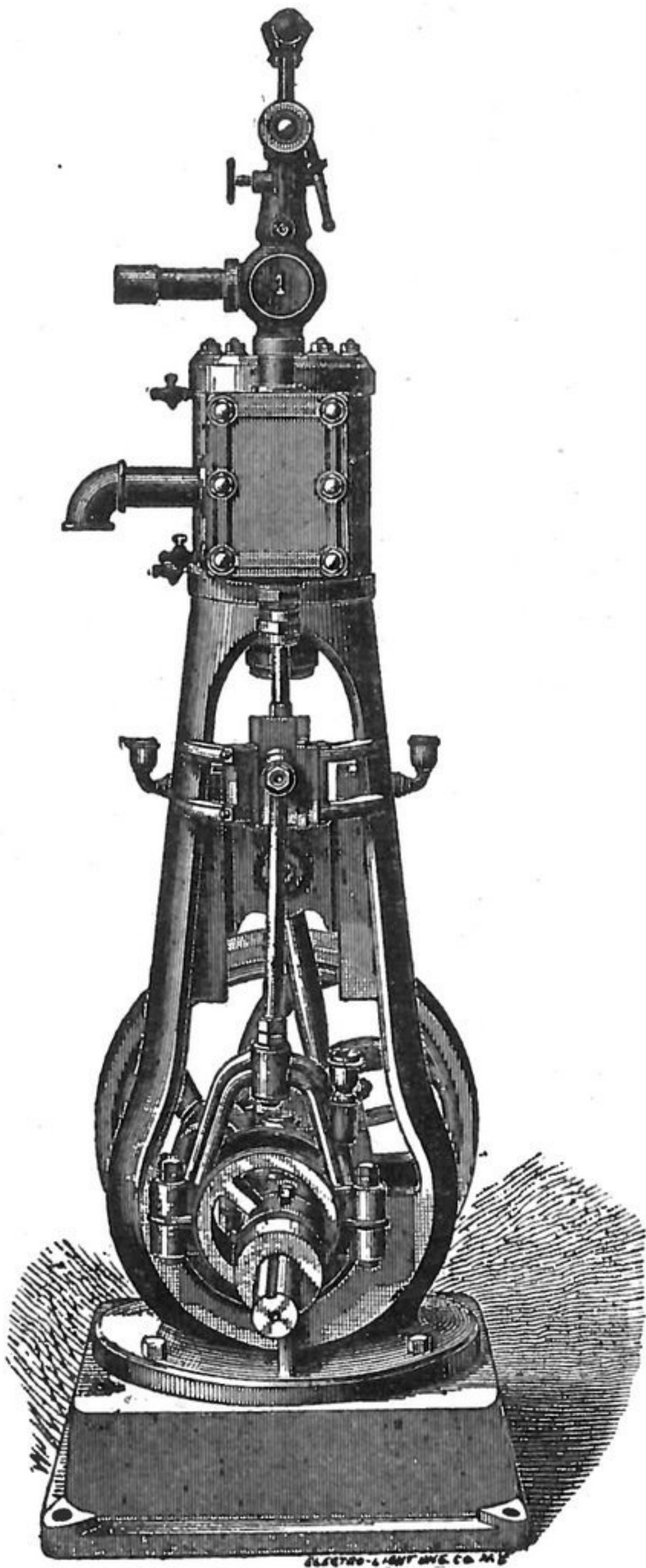
## OUR LINGUISTIC OMNIPOTENCE.

The saucy MILLING WORLD is very much dissatisfied with "Bradstreet's" crop reports. Why don't the WORLD go into the crop reporting business itself and try to straighten things out? It is in a good position to do so and has the necessary command of language to prove its estimates to be correct, whether they should be so or not.—*Kansas City "Modern Miller."*

There should be a good market for dictionaries in the vicinity of the Buffalo MILLING WORLD office. The editor's weekly hunt for such conglomerations as "excerebrose heb-etudinous rhombocephalic micromentalities" must be very destructive of dictionaries.—*Toronto "Electrical, Mechanical & Milling News."*



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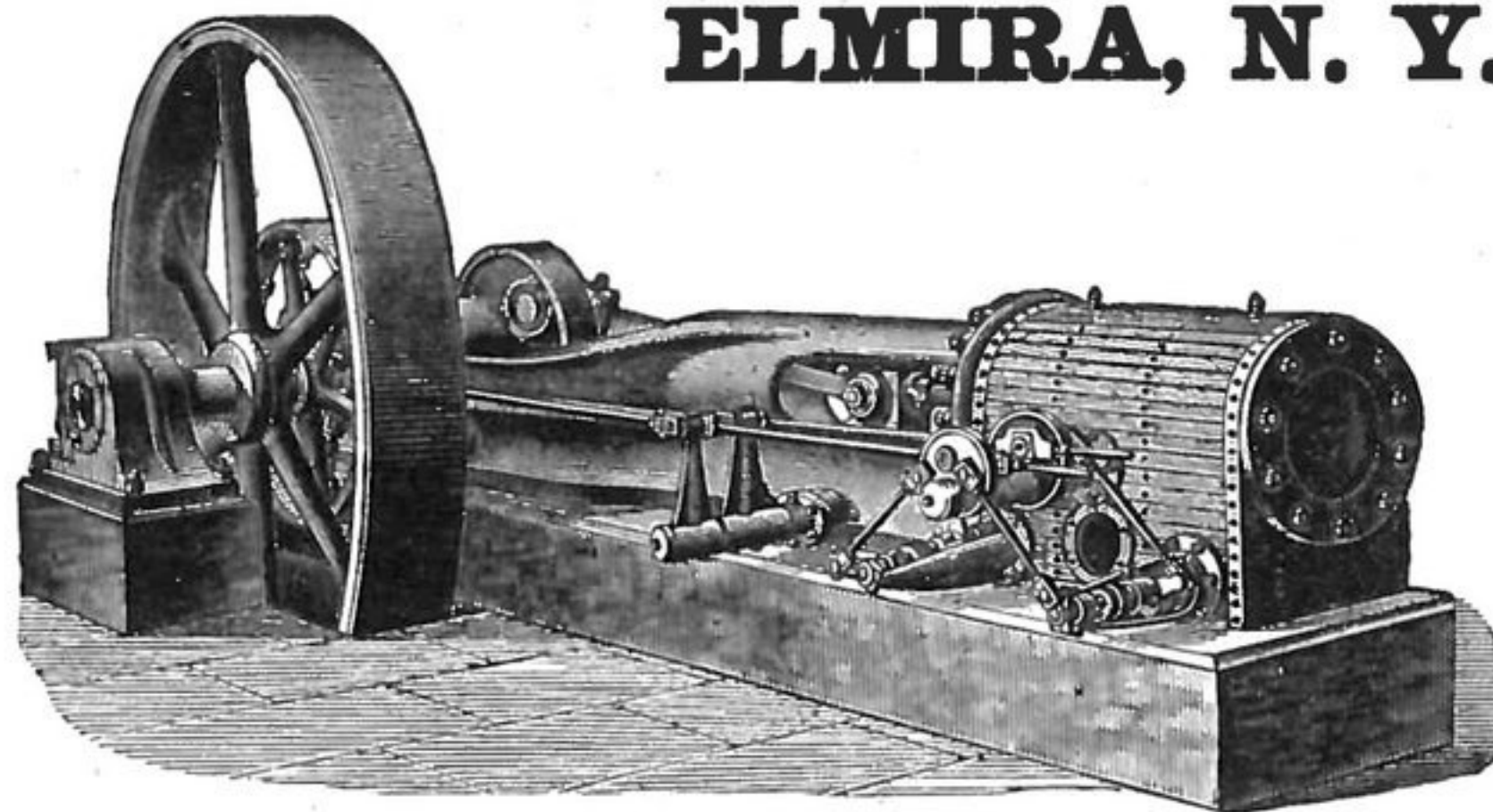
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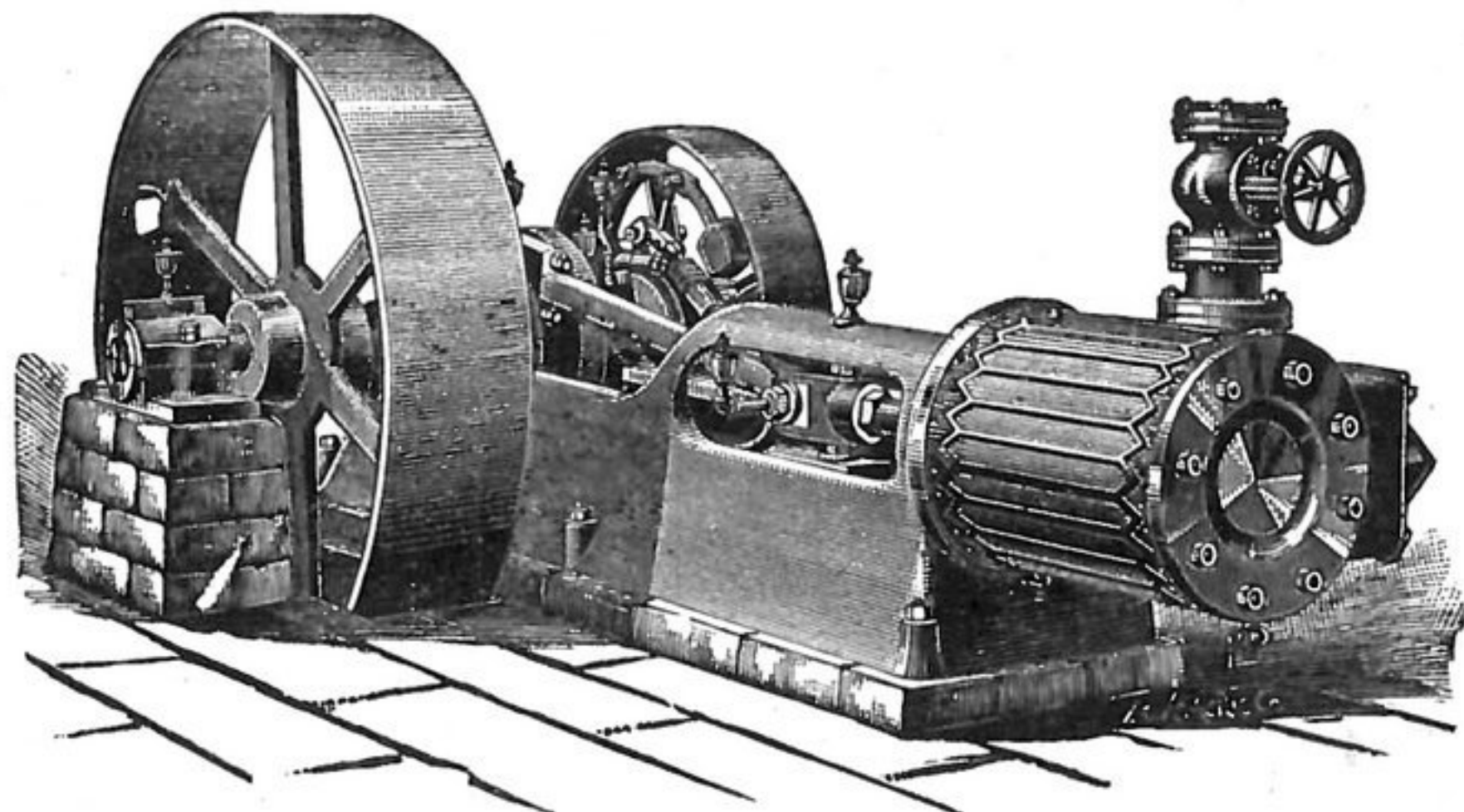
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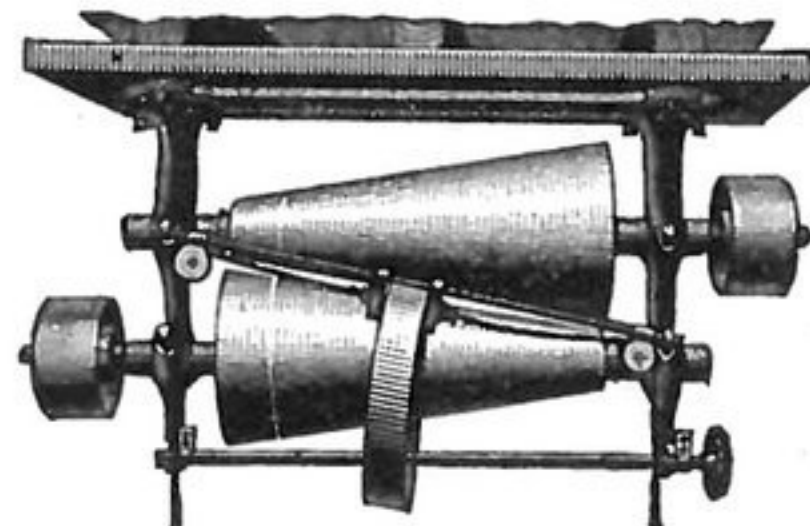
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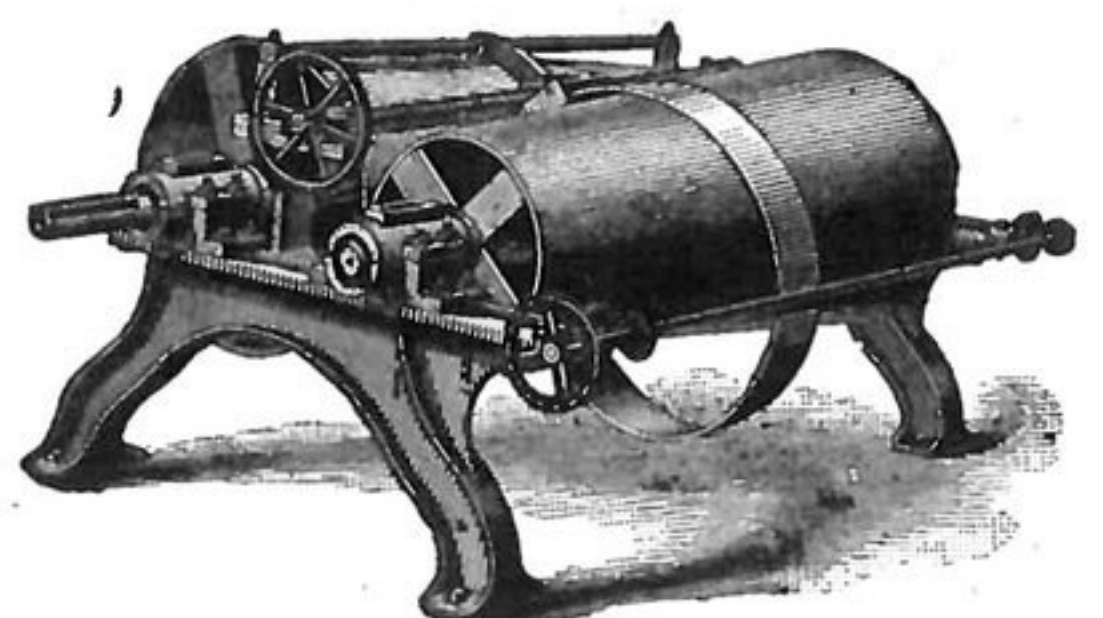
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OFFICE OF THE MILLING WORLD,  
BUFFALO, N. Y., July 13, 1889.

On Friday of last week, after the National holiday, the markets were generally weak, dull and easier on better crop reports and decreased demand. Improved cables failed to cause a show of strength. July wheat closed at 86½c. Options 2,500,000 bushels. July corn closed at 42½c. and oats at 28½c. Wheat flour was held stronger on another advance in Minneapolis limits. Choice patents were held at \$6.50. Exporters were far below the New York limits. Small sales were made for European markets. Trade was only moderate. All the minor lines were quiet.

Saturday brought bad crop reports from the various parts of the United States and from Europe, and the shorts began to cover, causing the markets to become stronger. July wheat closed at 86¼c. Options 2,680,000 bushels. July corn closed at 42½c. and oats at 28½c. Trade was moderate. Wheat flour was firm at the advance of 10@15c. for the week, with holders asking 5@10c. more for high-grade springs. Sales were not large. The minor lines were quiet.

Monday brought firmer cables and demands to cover, and wheat ran up over 1c. under bull manipulation on July and succeeding months. Russian and Hungarian reports indicated short crops in those two important countries, and stocks in All European markets are small. The situation appeared decidedly bullish, and the bulls will have it all their own way should the spring wheat yield sink to or fall below an average crop. July wheat opened at 87c. and closed at 87½c. July corn closed at 42½c. and oats at 28½c. Wheat flour was strong for high-grade springs, which were scarce. The trading was fair. Holders were not anxious to sell. Some fancy brands were raised in limit. All the minor lines were quiet. The visible supply in the United States and Canada was:

	1889. July 6.	1888. July 6.	1887. July 9.
Wheat.....	13,955,953	23,031,727	32,787,190
Corn.....	9,093,611	10,170,395	9,602,416
Oats.....	5,686,793	4,449,609	2,425,571
Rye.....	828,321	173,581	229,329
Barley.....	376,428	154,113	136,478

Tuesday saw every thing higher except oats. There were only light offerings in New York and in the West. Cables were better and stronger, showing an advance of 2 @ 4c. in wheat. Trading was small and the options in New York were only 1,656,000 bushels. July wheat advanced from 87½c. at opening to 88¼c. at closing. July corn closed at 42¾c., and oats, on free offerings, closed at 28c. Wheat flour was firm and in good demand. Exporters had more orders for flour, but the scarcity of freights and the weaker sterling exchange interfered with business. Orders were larger and prices better, and all grades were 5 @ 10c. higher. The other lines were fairly firm and active.

Wednesday brought a high degree of irregularity and activity. Foreign cables were higher at the opening, but eased off on foreign selling and local realizing. The government report gave the acreage of corn at 77,000,000 acres, an increase of 1,500,000 acres over the acreage of 1888, and the condition was given at 90 per cent., against 93 per cent. at the same time last year. The report on wheat gave the condition of winter wheat at 92 per cent, against 92 last month and 75 a year ago on July 1st, and 94 in 1887, when we had a 512,000,000 crop, with 800,000 acres more of spring and winter together in that year than this. The harvest is generally finished, with California 97; Illinois 94; Michigan 89; Missouri 94; Ohio

88; Indiana 92, and Dakota 62, or 28 less than a month ago, and 78 last year. The spring wheat is heading out, but condition is very variable, with straw short. Minnesota 87; Nebraska and Wisconsin 95; Idaho, Montana and Washington very low. The general average is 83, against 95 last month and 95 July 1st, 1888; 77 in September, 1888, and 99 in 1887, for July, when we raised the largest crop of both winter and spring wheat on record. The report is considered bullish. July wheat opened at 89¼c. and closed at 88c. Options 3,100,000 bushels. July corn closed at 42¾c. and oats at 27½c. Rye grain was scarce and quoted at 51 @ 52c. for State afloat; 49 @ 50c. for Jersey in car lots; 50 @ 51 for Western afloat. Malt was quiet at the following quotations: Canada, 95c for country to \$1.05 for city made; six-rowed State, 85 @ 92½c; four-rowed do. 80 @ 87c; Western 60 @ 85c. Mill-feed was steady at the following figures: 60 @ 62½c. for 40-lb. and 80 lb, 57½c. for 60-lb, 75 @ 80c. for 100-lb; with some mills asking 2½c more. Later sales of 9,000 bags were made by Jewell at 60c for 40-lbs and 60-lbs and 75c for 100 lbs; 70c for rye and 1.20 @ 1.30 for oil and cottonseed meal.

Wheat flour was held as firmly as ever, and there were export orders at Tuesday's prices. Trade was fair in volume. The quotations were as follows:

SPRING FLOUR.		
	Sacks.	Barrels.
No grade.....	\$1.70@1.90	\$....@....
Fine.....	2.10@2.20	2.25@2.60
Superfine.....	2.30@2.60	2.70@3.10
Extra No. 2.....	2.95@3.25	3.15@3.40
Extra No. 1.....	3.40@3.80	3.65@4.30
Clear.....	3.50@3.80	3.80@4.05
Straight.....	4.30@4.80	4.55@5.30
Patent.....	5.55@6.05	5.55@6.40

WINTER FLOUR.		
	Sacks.	Barrels.
No grade.....	\$1.90@2.00	\$....@....
Fine.....	2.40@2.50	2.50@2.65
Superfine.....	2.60@2.90	2.90@3.15
Extra No. 2.....	3.15@3.40	3.45@3.65
Extra No. 1.....	3.65@4.55	3.85@5.05
Clear.....	3.80@4.30	4.20@4.65
Straight.....	4.45@4.80	4.70@5.05
Patent.....	4.65@4.95	5.15@5.55

CITY MILLS.	
W. I. grades.....	\$4.45@4.70
Low grades.....	2.55@2.80
Patents.....	5.55@6.00

Rye flour was dull at \$2.80@3.00. Corn products were unchanged on barrel stock and higher on bag meal, owing to the advance in corn and the scarcity of white meal. The quotations were: Coarse 82@84c.; fine yellow 92@95c.; fine white 95c@1.05, and up to \$1.15 for fancy; Brandywine \$2.75; Southern and Western \$2.60@2.75; grits \$2.60@2.70; hominy grits \$2.70@2.75 in barrels, \$1.20 in sacks; granulated brewers' meal \$1.20 per 100 in sacks. Corn flour \$2.00@3.00 for bbls.; chops 60@65c.

Thursday was a day of activity. July wheat closed at 86½c. Options 4,520,000 bushels. Exports 81,000 bushels. July corn closed at 42¾c. and oats at 57½c. Wheat flour was steady and unchanged. The minor lines were featureless.

#### BUFFALO MARKETS.

WHEAT—There was little demand for spring wheat to-day, but prices were firm on all grades. The limit was unchanged for old No. 1 hard, but new No 1 do was ½c higher than yesterday, it being held at 25½c over Chicago July. The only sale reported was 2,600 bu old No. 1 Northern at \$1.02. No. 2 spring early in the day was quoted at 90c, but at the close was offered at 85½c. Winter wheat in fair demand, and market steady. Sales comprised 7 carloads No. 2 amber at 91c and 3 do No. 2 red at 70c on track; 97c was asked for No. 2 red in store, and 81@82 asked for No. 3 do. No. 1 white Michigan was quoted at \$1.00 on track, No. 1 white Oregon 89c in store. At the close the market was easier at the following prices: No 2 red Michigan at 97c and No. 1 white Oregon 88½@99c. CORN—In slow demand, and market dull and weak. No. 2 corn was quoted at 89½c; No. 3 do 89½@89¾c; No. 2 yellow at 40c, and No. 3 do at 39½@39¾c. At the close the market was dull and lower. No. 2 yellow was quoted at 39¾c; No. 3 do and No. 2 corn at 39¾c, and No. 3

corn at 39c. OATS—In light demand and supply but market steady. 4,000 bu No. 2 mixed changed hands at 26¾c in store. No. 2 white sold at 32½c, on track; No. 3 do at 31c and white State oats from farmer's wagon at 35@38c. CANAL FREIGHTS—Firm. Rates of freight on wheat to New York 8¾c, on corn 8¾c, on oats 2½c, and on rye 8¾c; lumber rates to New York \$2.25, to Albany \$1.75. RYE—Dull at 47½@48c for No. 2 Western. FLOUR—City ground—Patent spring, \$6.00@6.25; straight Duluth spring, \$5.75@6.00; bakers' spring, best, \$5.50@5.75; do rye mixture, \$4.75@5.00; patent winter, \$6.00@6.25; straight winter, \$5.00@5.25; c'ear winter \$4.75@5.00; cracker, \$4.75@5.00; graham \$4.75@5.00; low grade, \$3.00@4.00; rye, \$3.25@3.50 per bbl. OATMEAL—Akron, \$6.00; Western \$5.75 per bbl; rolled oats, in cases, 7½ lbs \$3.25. CORNMEAL—Coarse, 80@85c; fine, 85@90c; granulated, \$1.50 per cwt.

Chicago Daily Business sums up the north-western crop conditions as follows: The conditions in the northwest, where all the interest in the wheat-crop situation is now centered, has undergone but little change during the past week. Rains have visited many of the drouth-parched sections in the Dakotas and Minnesota, but they came too late to accomplish much good. The damage in these dry districts has progressed too far to be easily remedied, and in such localities it now seems idle to expect even a half crop. The want of moisture immediately following the seeding seemed to have prevented the proper shooting of the grain, and where two or three stalks should shoot out from the kernel there are said to be thousands of acres where there is only a single stalk, and that of a short and spindling character. This feature of the Dakota wheat-fields is dwelt on very generally in reports from the dry districts, both in Dakota and Minnesota, and much stress is placed on the fact that this feature alone must inevitably have a very marked effect upon the final yield, reducing it from 50 to 66 per cent. from this cause alone, even admitting the one solitary stalk to be healthy and productive, which of course it can not be, as it is affected by the same causes which have prevented the stooling. This condition is much more frequent in the Dakotas than in Minnesota, and on its extent depends the outcome of the growing crop in the northwest. The difficulty of the situation is to get reliable information as to the extent of such areas. Those who gather and transmit this information, who have only favorable reports to make, do their business calmly and without excitement as compared with those who are purveyors of bad news, and this is only natural. Those who live in districts where they have good average crops find nothing in the situation to cause them to swerve from their even balance. But the observer who is surrounded by ruined wheat-fields, having in view all the evils which such a state of things implies, is apt to get somewhat excited and pitch his complaints in a somewhat louder key than he who is in the midst of normal surroundings. Hence the "crop killer" easily becomes a prominent figure in the present situation. A careful analysis of the very voluminous reports from the Dakotas, embracing every county in the principal wheat sections, makes it certain that these partially ruined districts are unfortunately quite extensive, and the condition is such now that very little betterment can be expected, whatever the moisture and weather may be from now to the harvest. But while large, the extent is not equal to what seems to be very generally supposed. We think it would be fair and conservative to estimate the exceeding poor area at about one-fifth of the whole, two-fifths as medium to fair in promise, and the remaining two-fifths good to above the average. Deductions from this basis would make the condition of Dakota as a whole about 74 per cent. of an average, or a fraction above last week's estimate, the improvement being due to the rain there during the week. In Minnesota the poor areas are of limited extent, and the majority of reports are fairly encouraging. We estimate the condition there at 83 per cent, which is a slight improvement over last week's estimate. In other spring wheat sections the situation is favorable and the yield promises to be more than an average.





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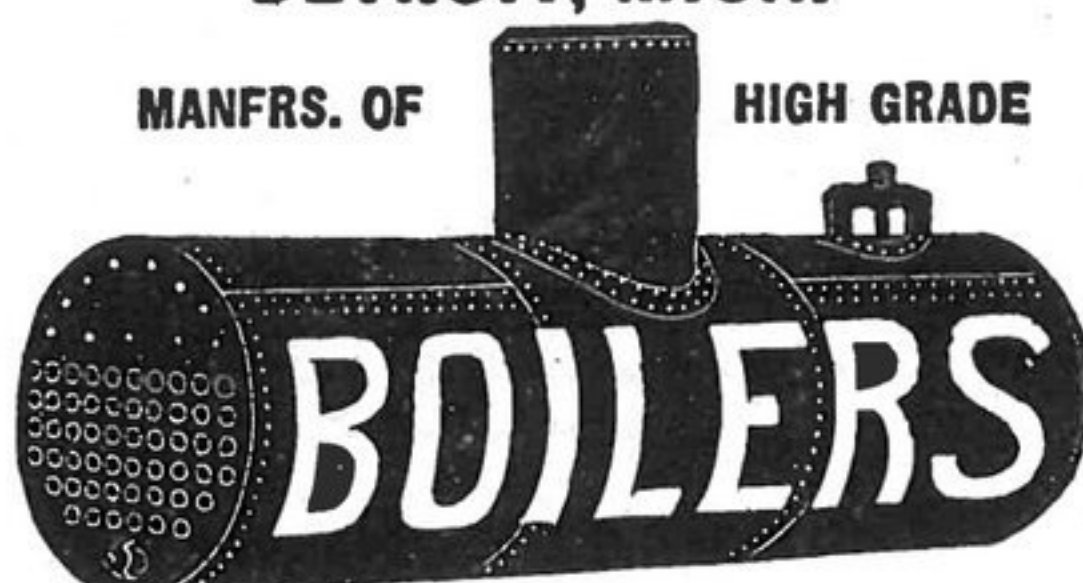
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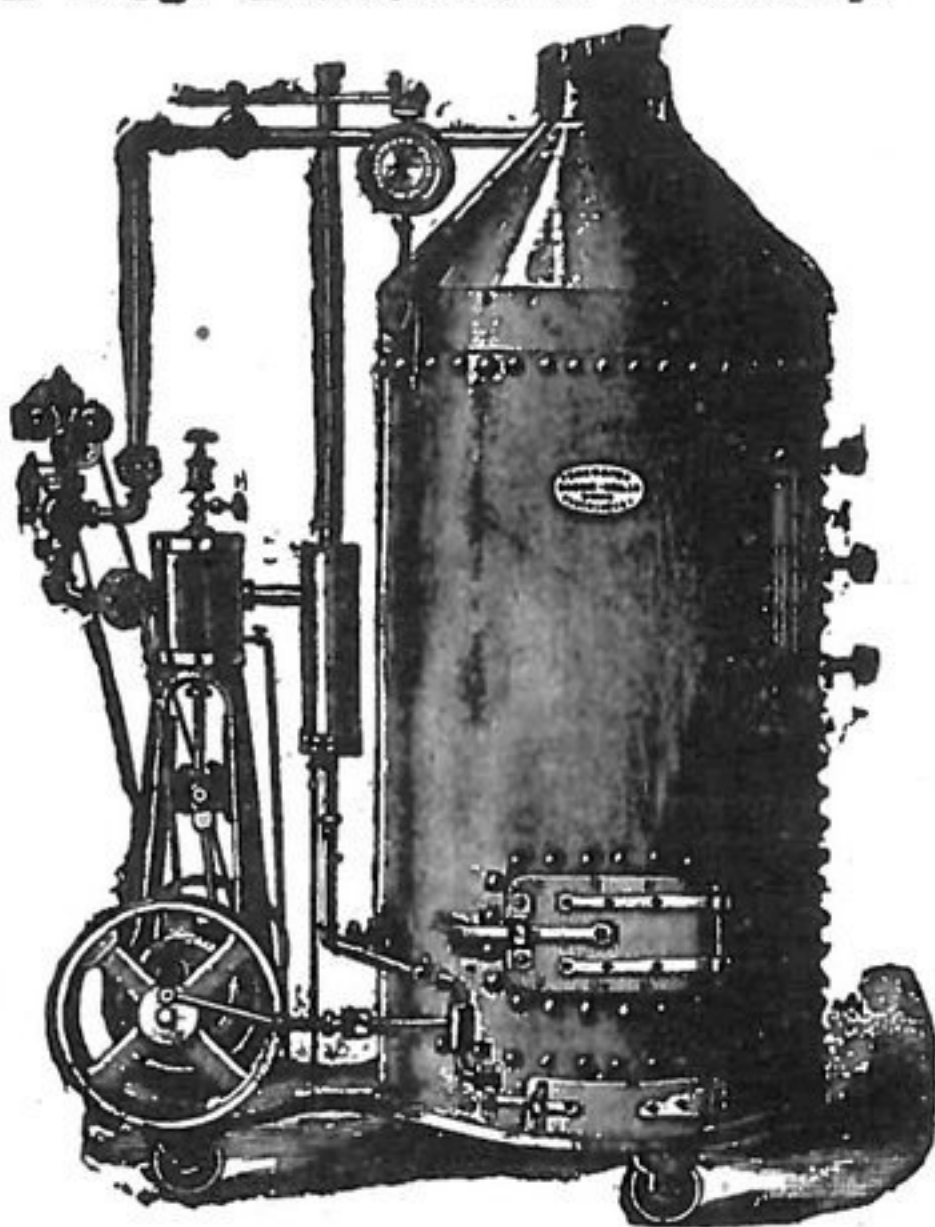
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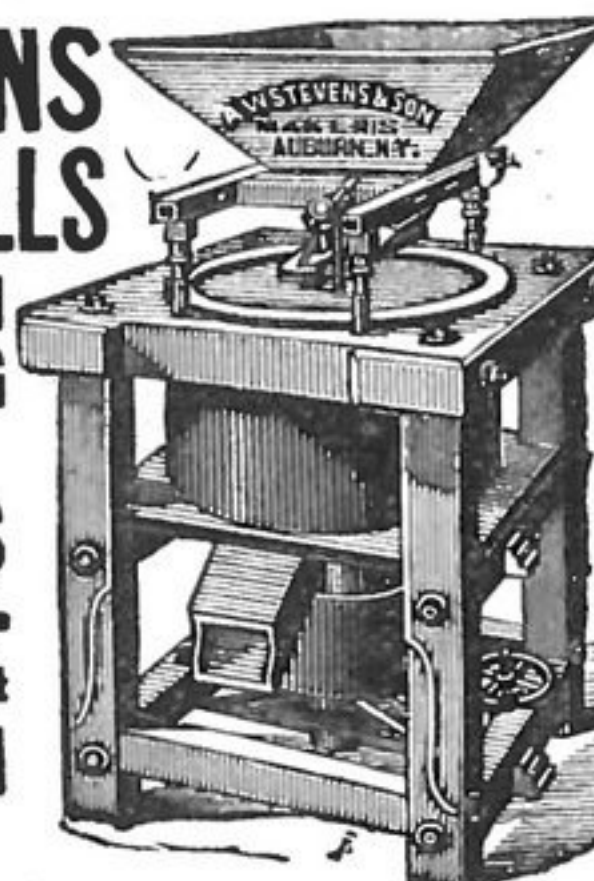
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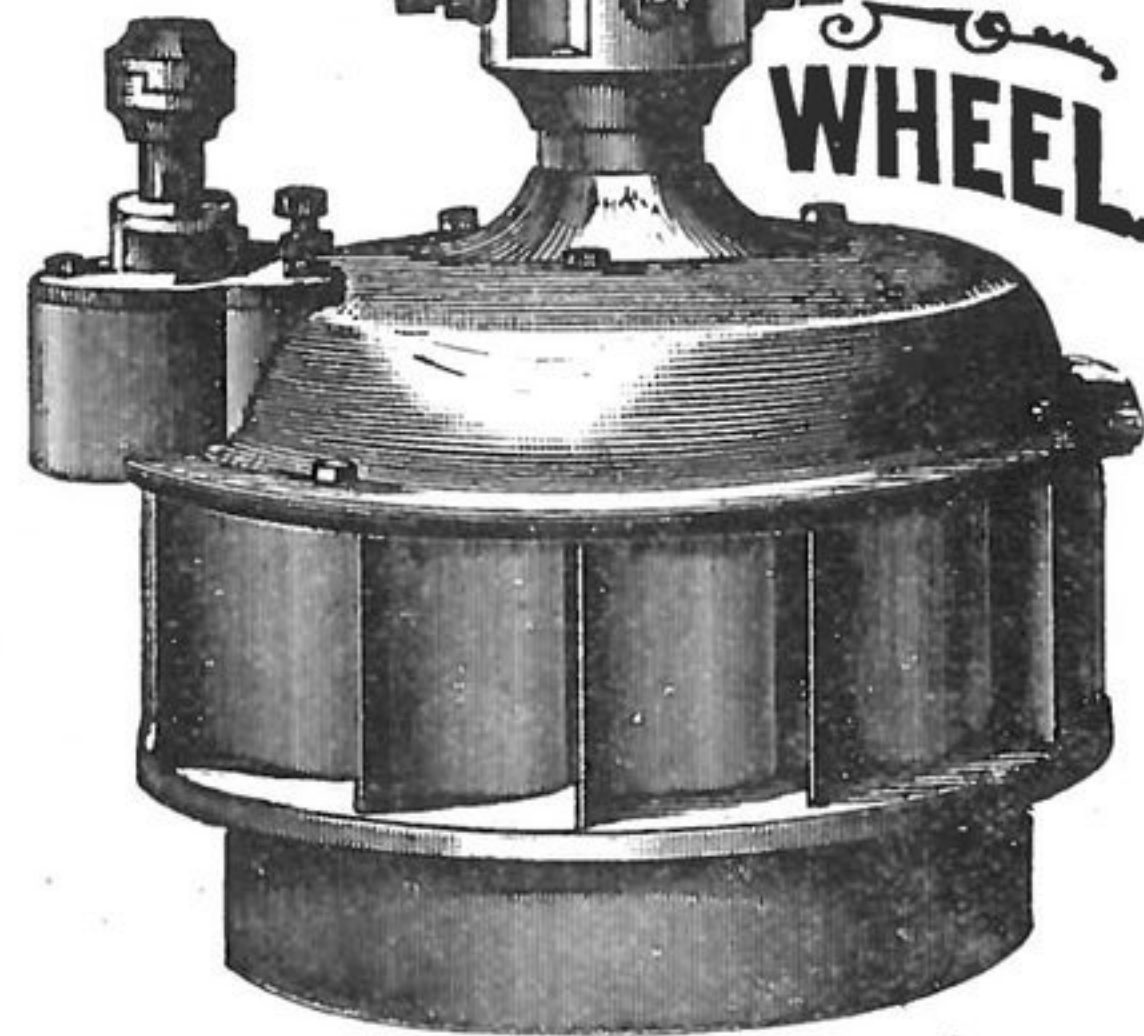
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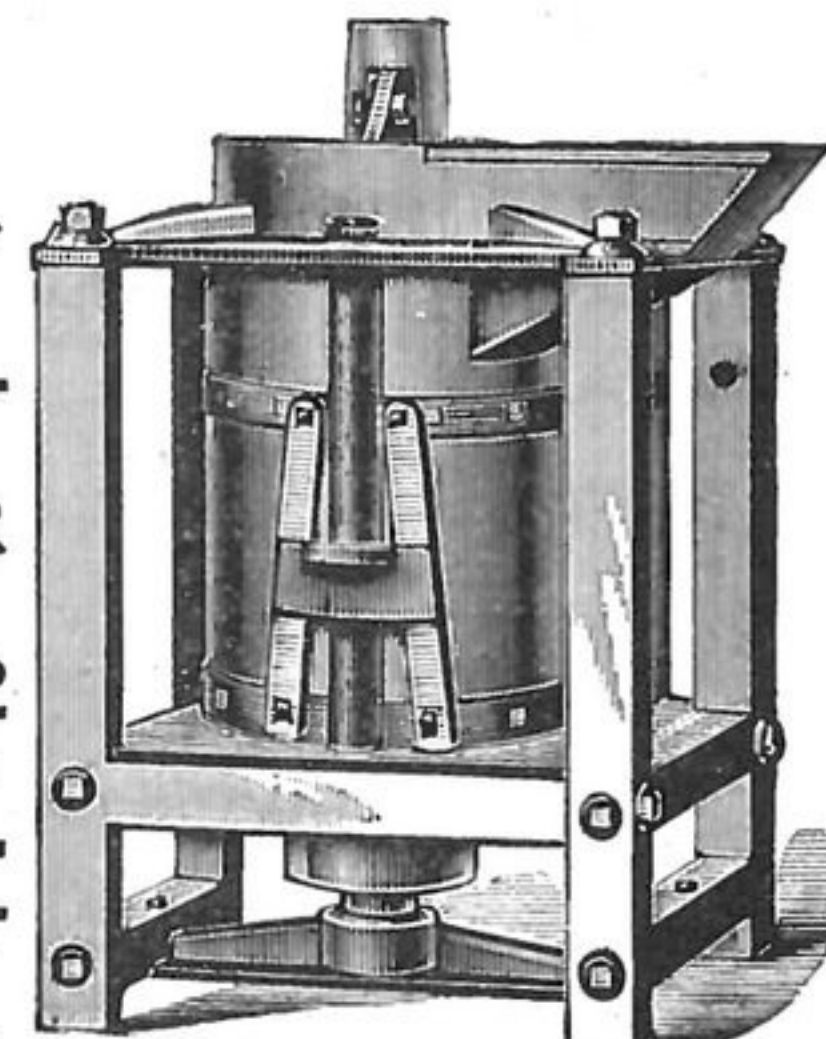
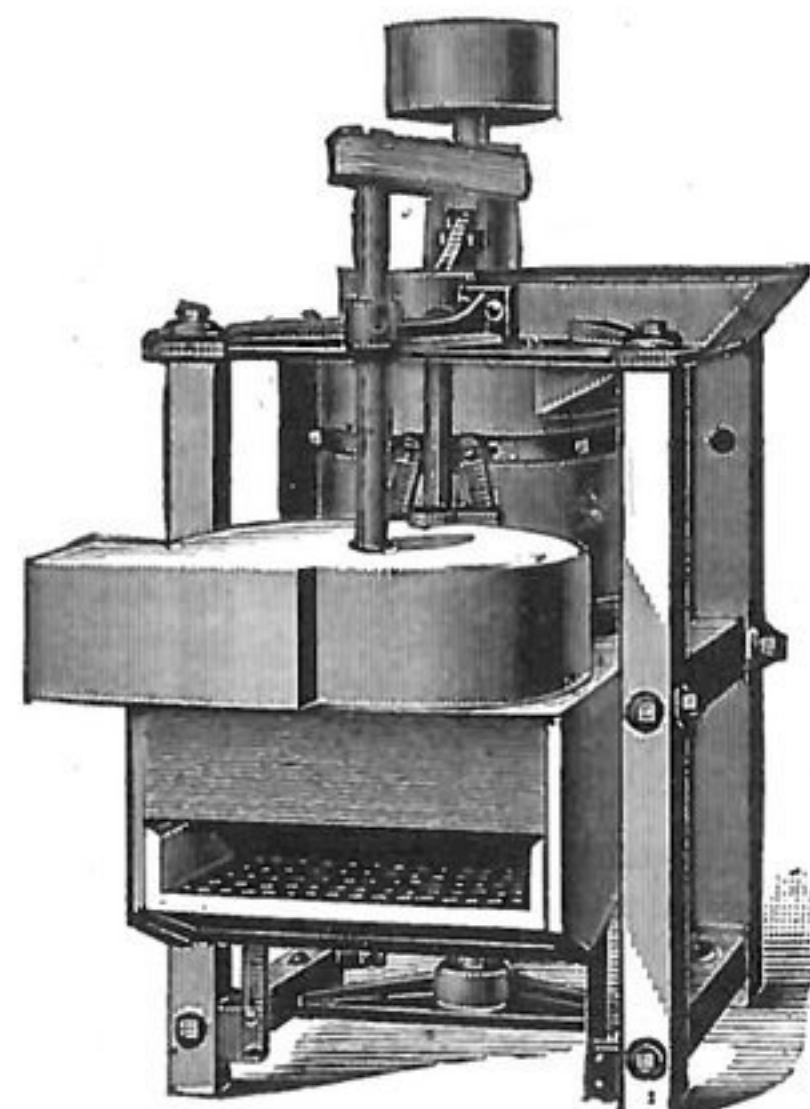
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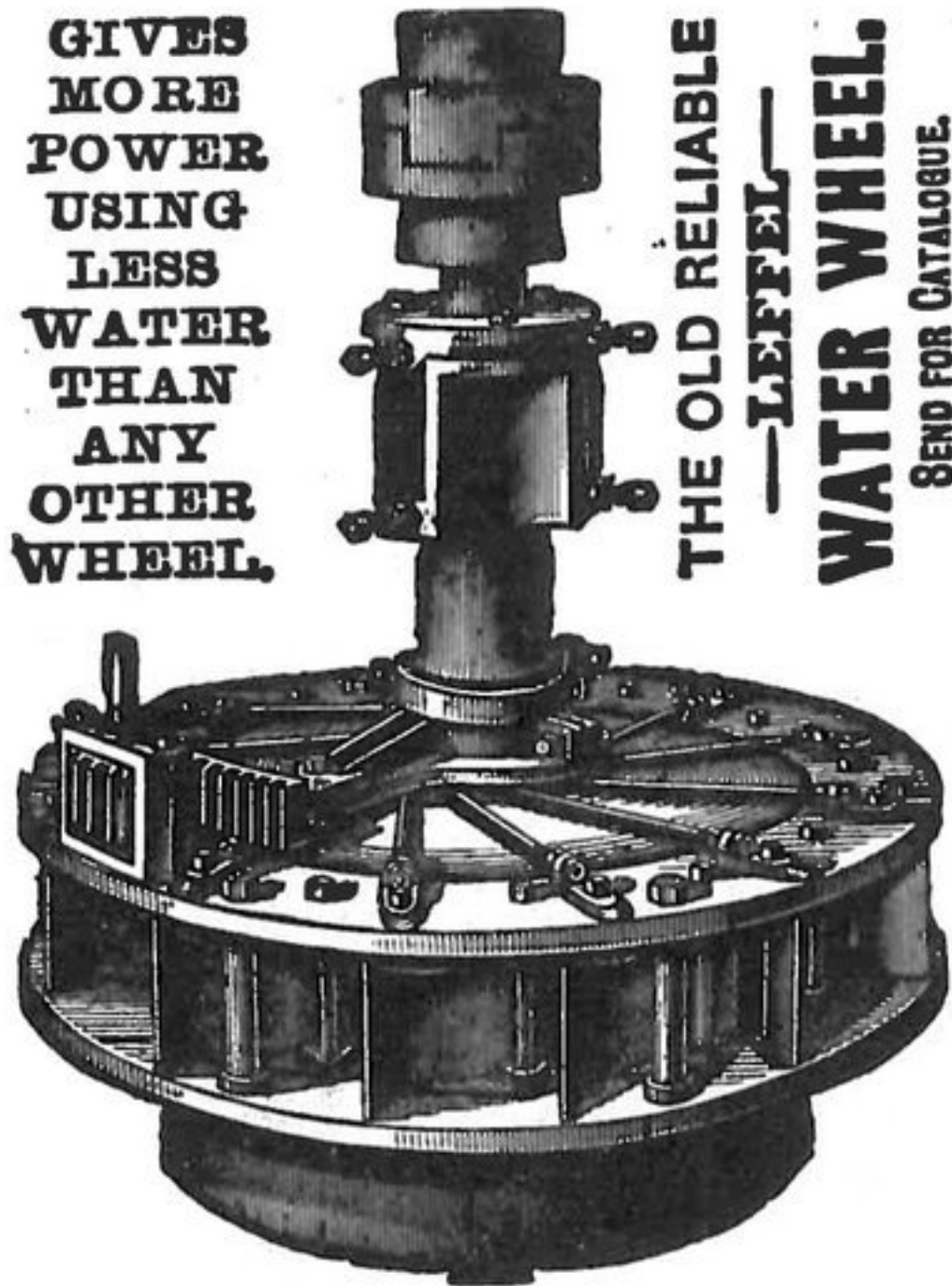
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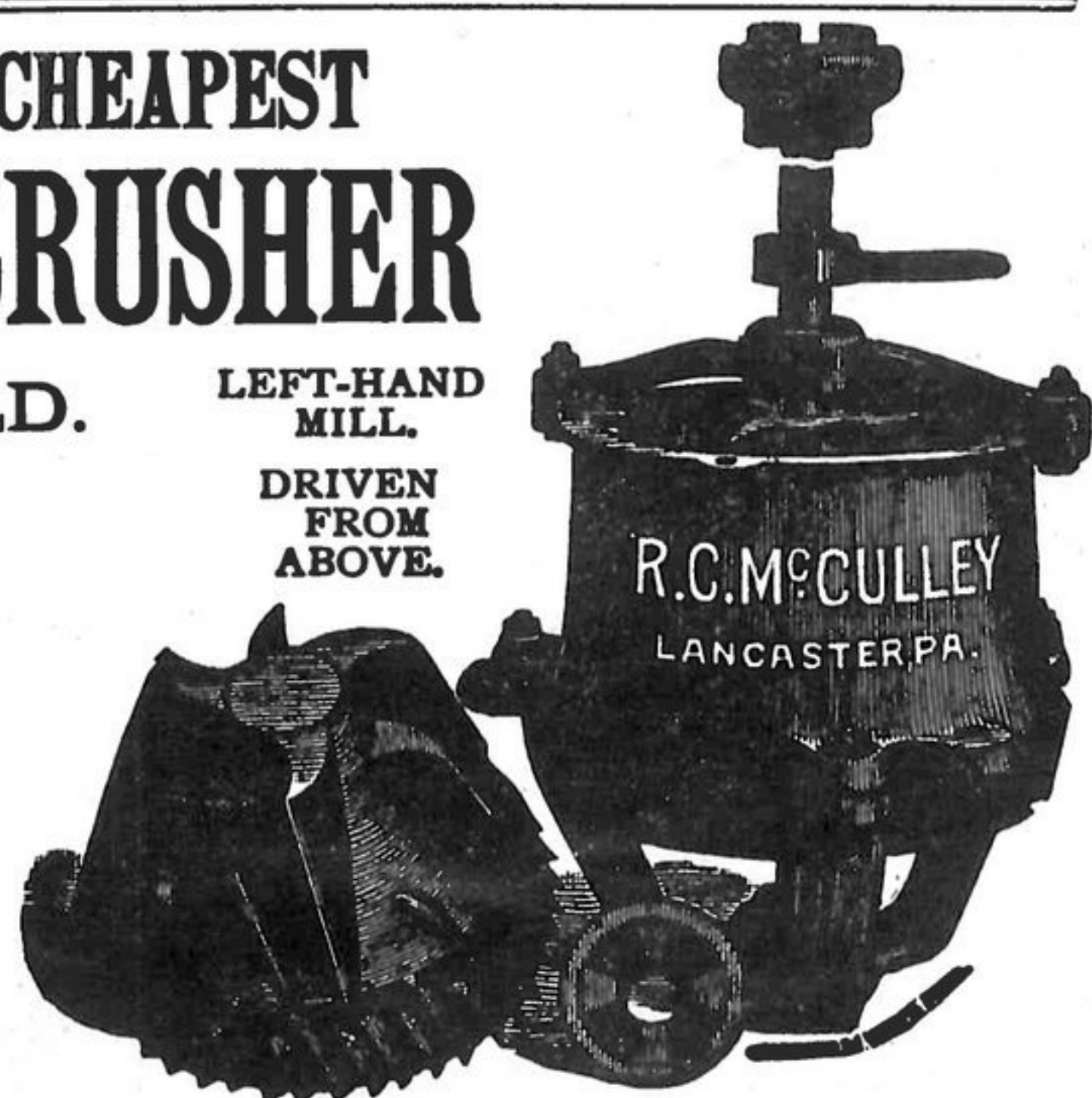
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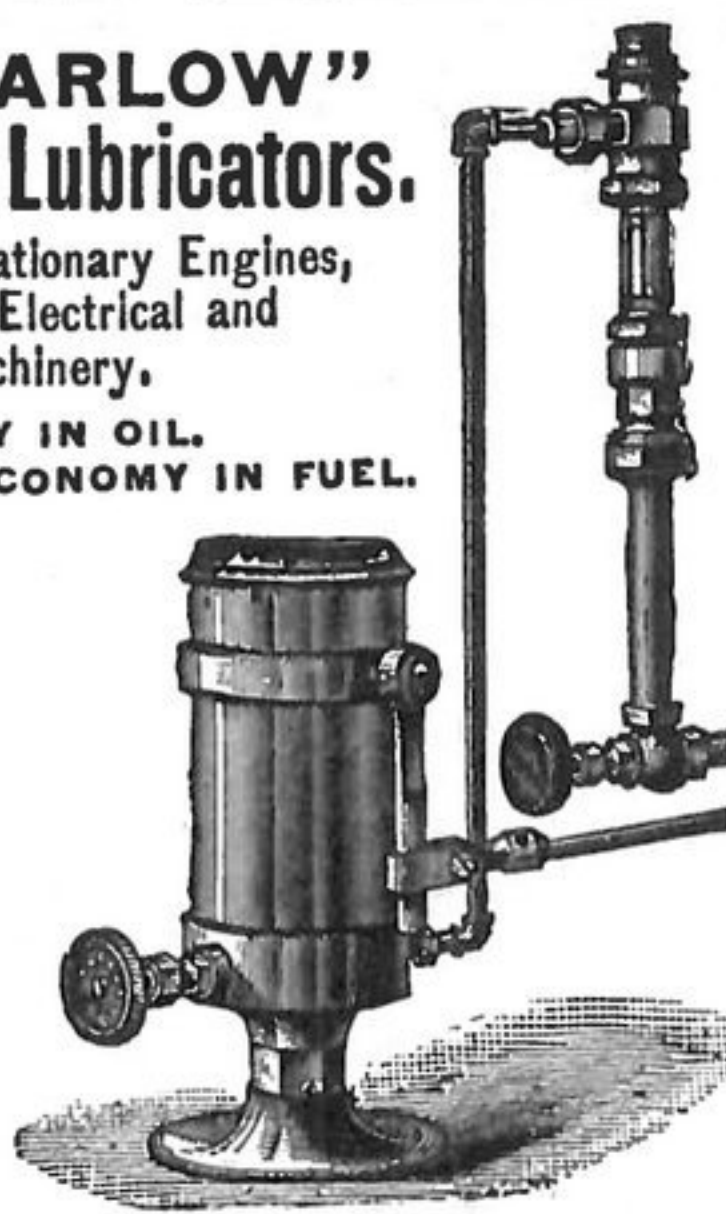
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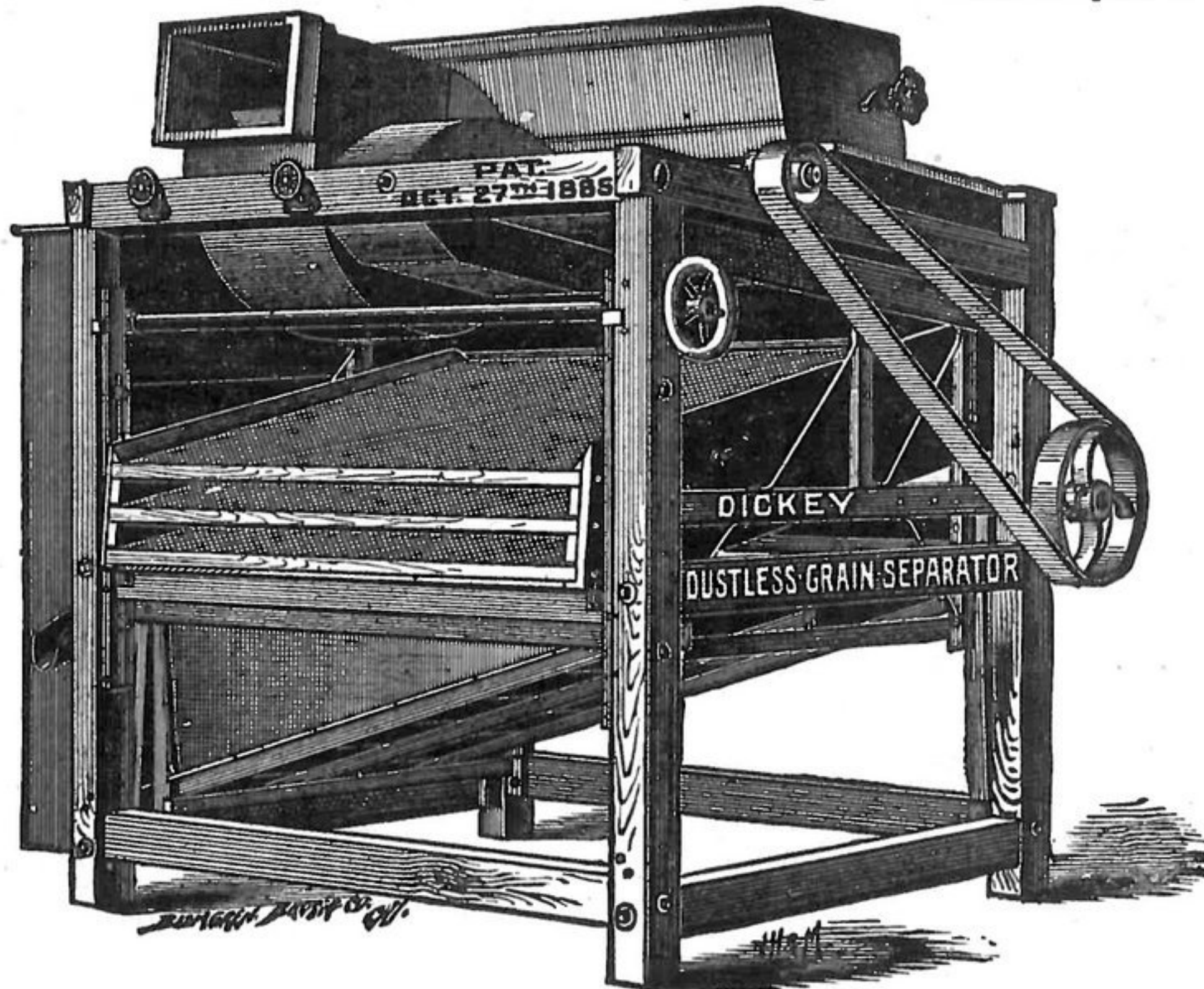
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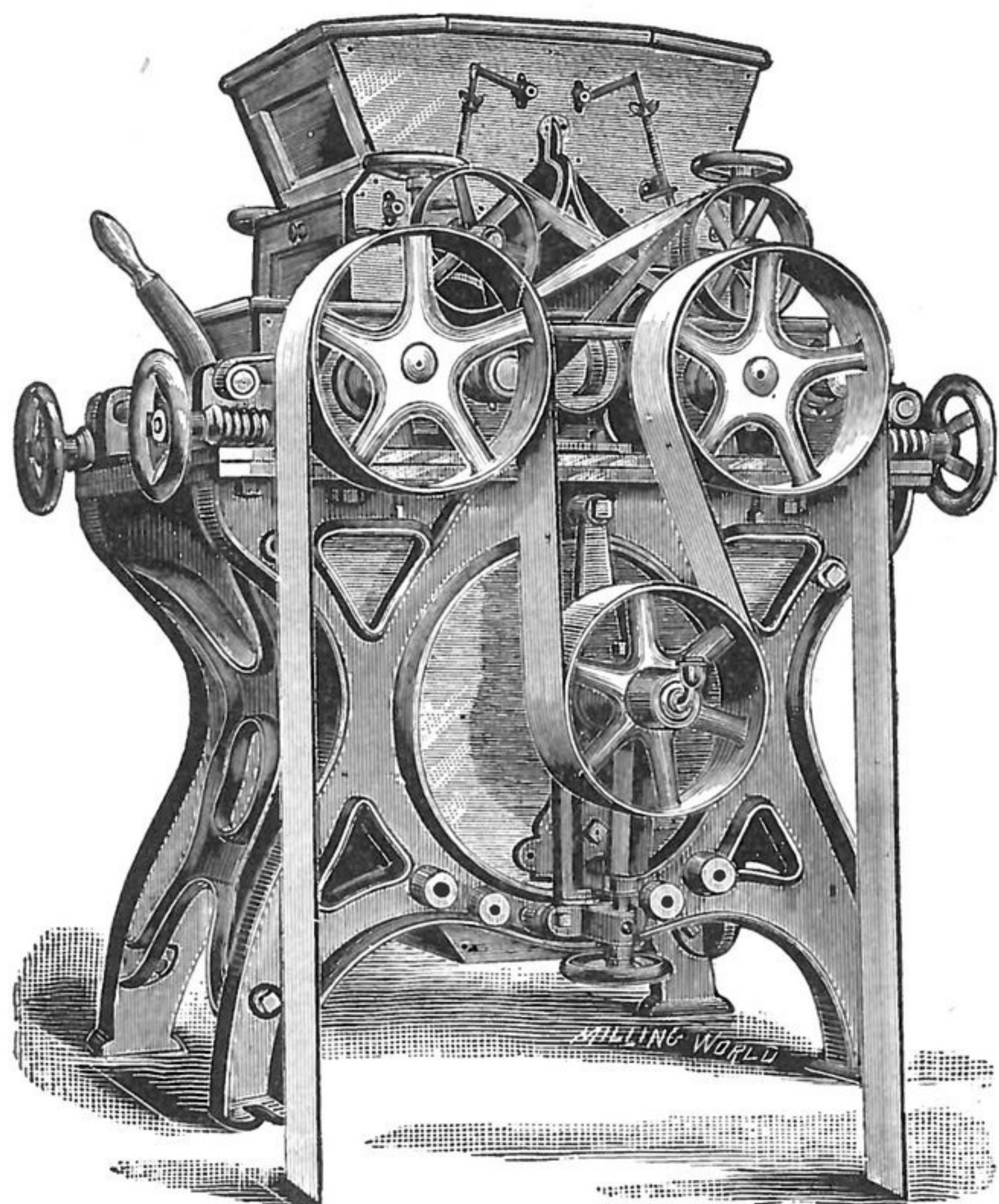
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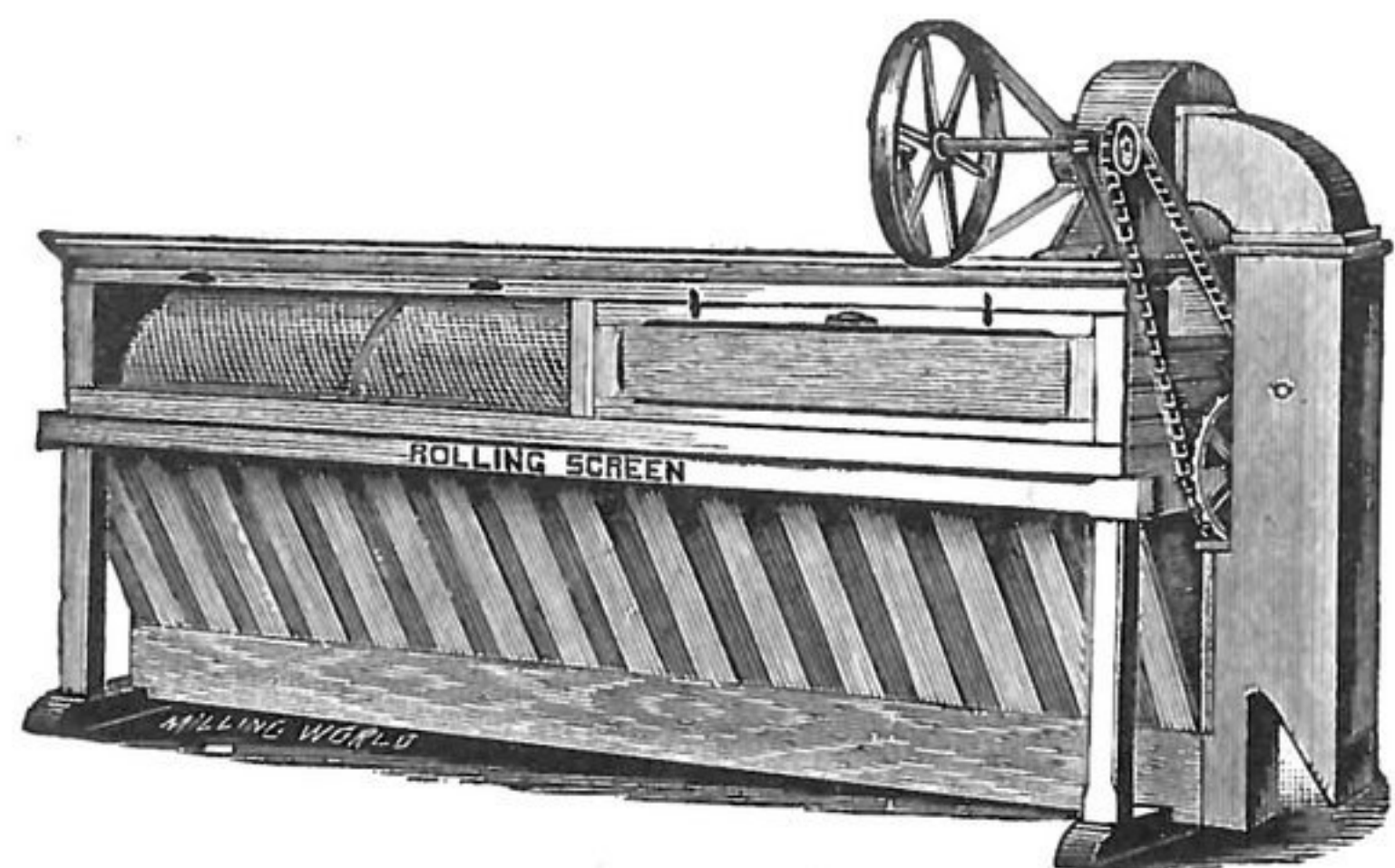
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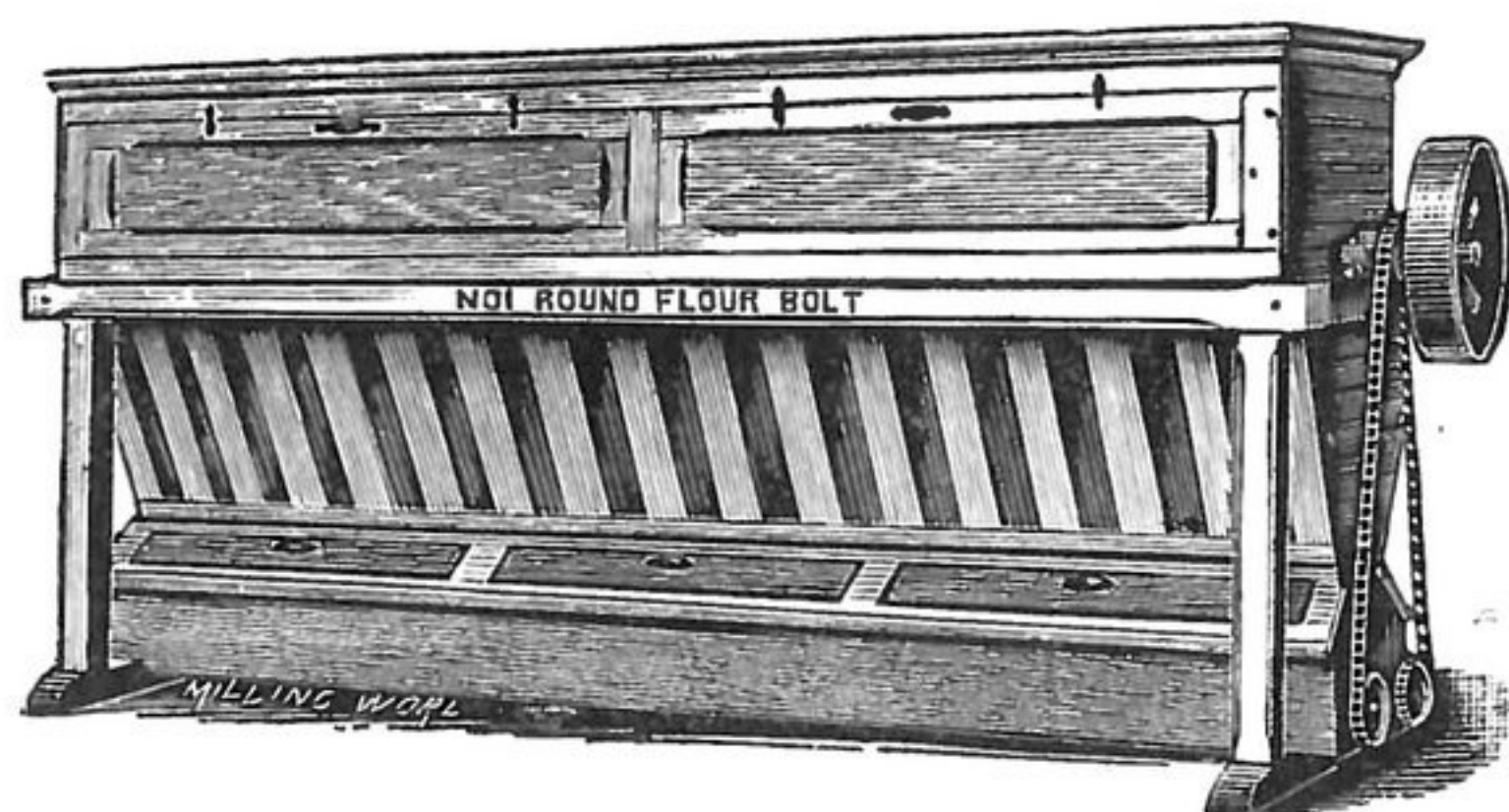
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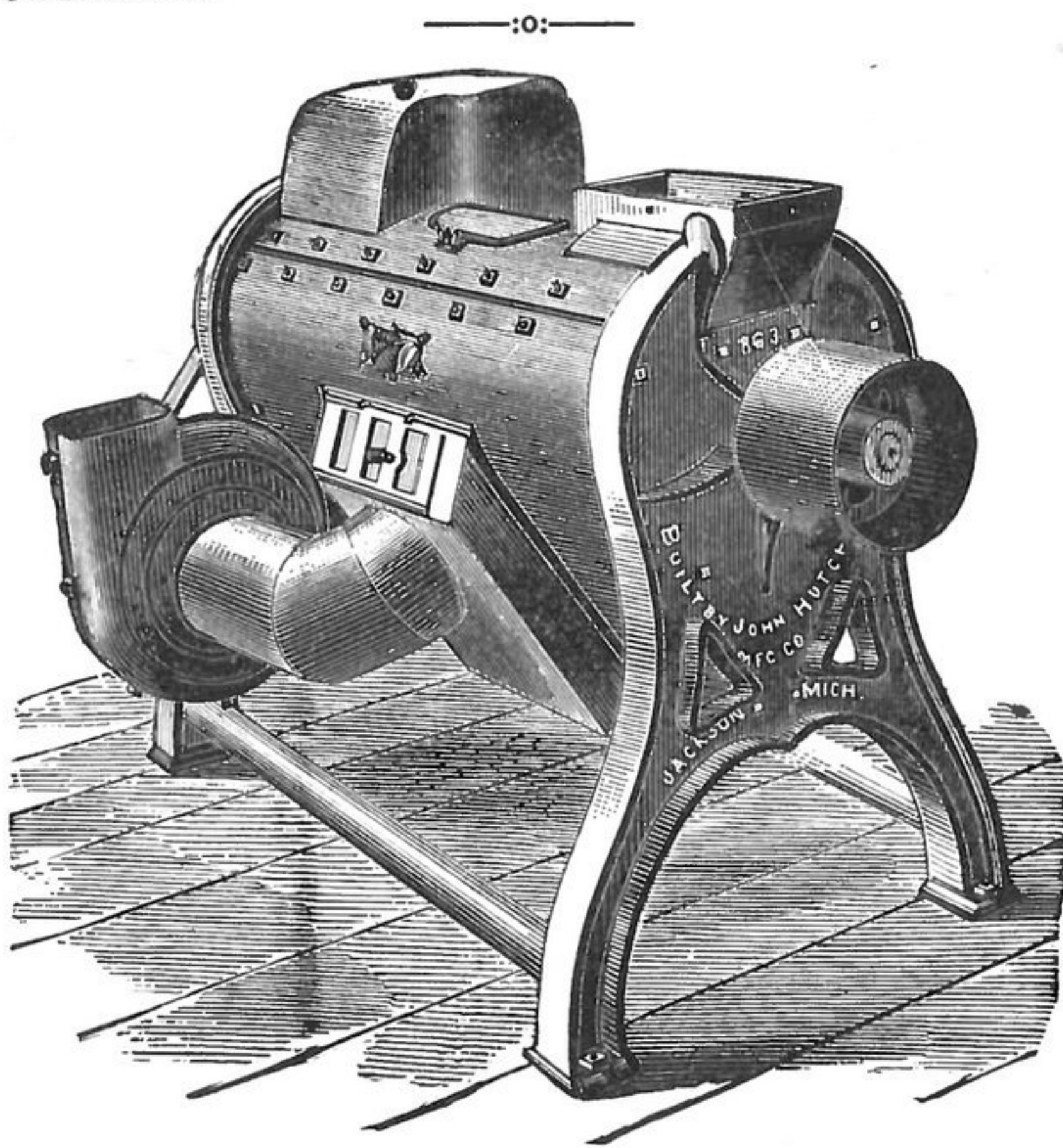


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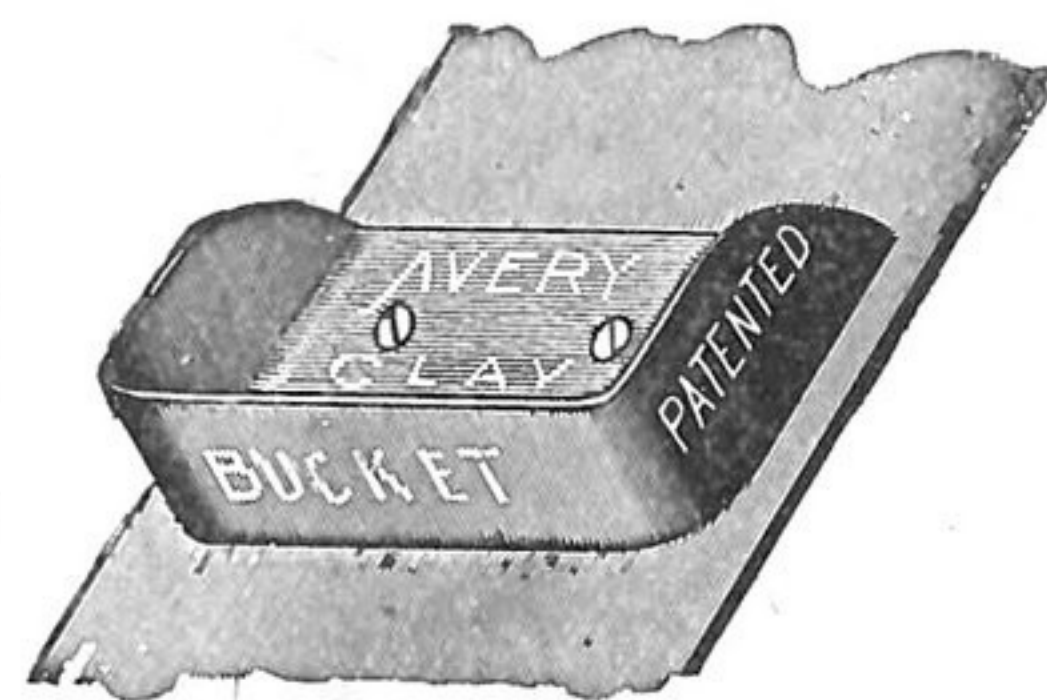
**PLEASE NOTICE.**

Our patents not only cover Seamless, Drawn, Stamped, Pressed or Forged Elevator Buckets; but also Pre-Date and Cover Round-Cornered Elevator Buckets when made Seamless, and are the Only patents ever issued in the World for a Pressed, Stamped, Drawn or Forged Seamless Elevator Bucket.

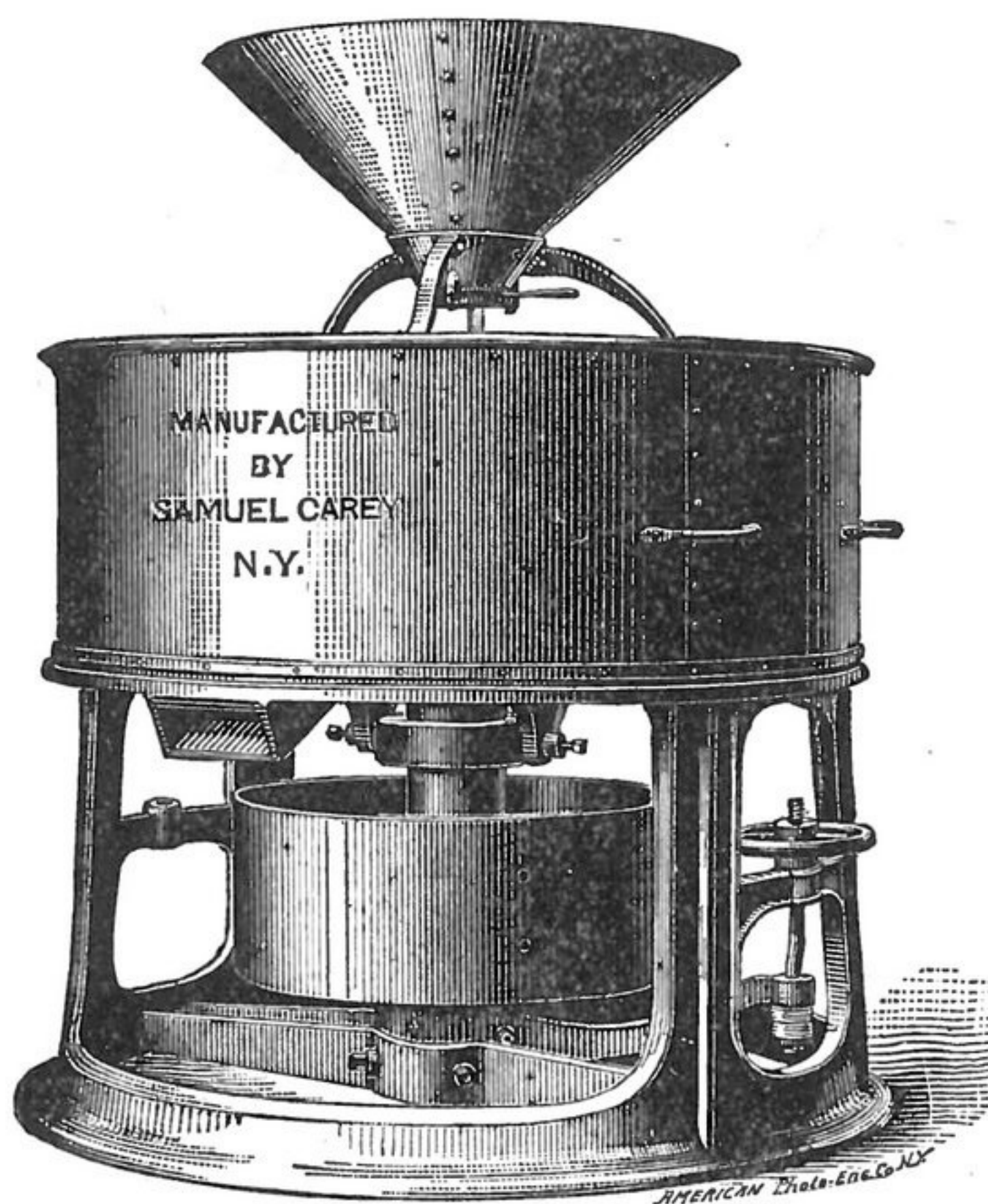
Stamping and Pressing of Sheet Metals for all Classes of Work. Also Tinning, Galvanizing and Japanning.

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Successors to The Avery Elevator Bucket Co.,  
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**PORTABLE MILL**

BEST GRINDING MILL MADE.

**BOLTING CLOTH**

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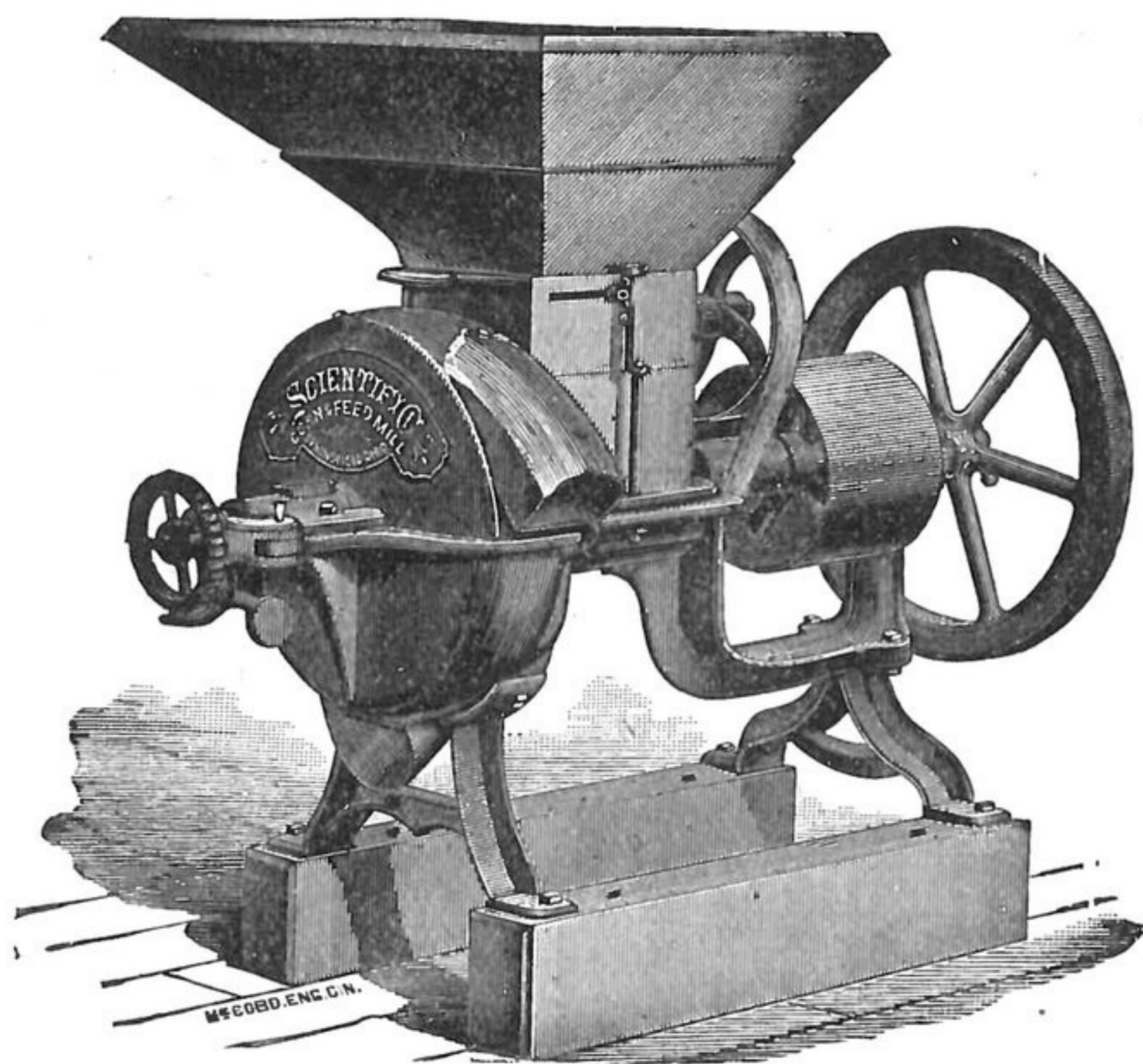
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**THE SCIENTIFIC GRINDING MILL.**

POSITIVELY THE BEST MILL ON EARTH.

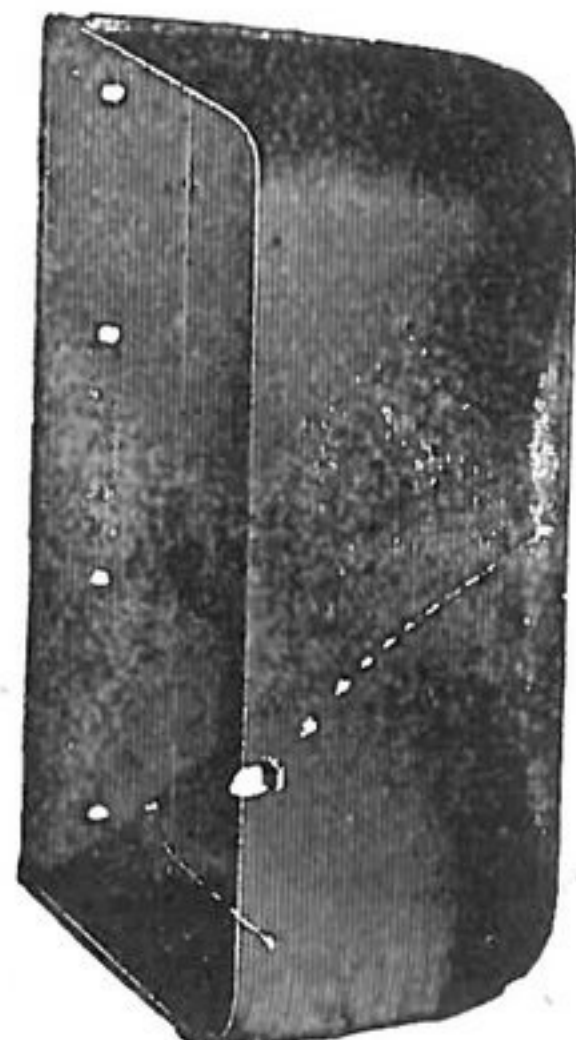
GRINDS PERFECTLY, EAR CORN, SHELLLED CORN,  
AND ALL GRAINS.**GRINDING PLATES A SPECIAL METAL**

*Hard as Steel, Guaranteed to Grind from Five to Eight  
Thousand Bushels before wearing out.*

SEND FOR ILLUSTRATED CATALOGUE, PRICES, ETC.

**THE FOOS MFG. CO.**

SPRINGFIELD OHIO.

**STILL ON TOP.**

Perhaps the **HIGHEST COMPLIMENT** that could be paid the "Salem" bucket is the fact that during the past few years ITS SHAPE HAS BEEN SO CLOSELY IMITATED by other manufacturers as to infringe our patented rights, but experience reveals the **IMPERFECTIONS OF IMITATIONS**, and we therefore take it as a **FURTHER COMPLIMENT** to the "SALEM" bucket that some of its old patrons who were *Induced to Try the Imitations have now Returned to the Salem Bucket, thereby Acknowledging it to be the Most Satisfactory.* Don't be deceived by other makes of buckets that are claimed to be "Just as Good." Insist upon having the **ORIGINAL AND RELIABLE SALEM BUCKET.** All legitimate Salem buckets are plainly marked with the word

**SALEM****W. J. CLARK & CO.,** SOLE Manufacturers **SALEM, OHIO.**

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